Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves
PUBLISHED WEEKLY BY TELEPHONY PUBLISHING CORP.
608 S. Dearborn St., CHICAGO

H. D FARGO, President and Treasurer
S. R. EDWARDS, Editor and Secretary

H. D. FARGO, Jr., Vice-President and Advertising Manager
D. C. SORENSEN, Western Advertising Manager

Entered as second-class matter September 4, 1908, at the postoffice at Chicago, Ill., under act of March 3, 1879.

Volume 94
Number 2

CHICAGO, SATURDAY, JANUARY 14, 1928

Subscription — 10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

THE TELEPHONE RATES SITUATION AND BELL DEVELOPEMENTS

It is a generally recognized fact that America's unprecedented business advancement and prosperity are largely due to the efficient development of two factors—communication and transportation. The United States is a big country, but its wide expanse has been so effectively criss-crossed by railways and telephone and telegraph lines that business has not been hampered, but actually helped, by the magnificent distances.

Without effective communication and transportation, the very size of the country would have retarded national development; in fact, it was not until these two public servants approached real effectiveness that the country really began to grow and develop as we know growth and development today.

The communication and transportation services are given credit by the best economic minds for the notable advancement made in the United States since the opening of the century. The excellence of the service and its comparative cheapness are likewise admitted.

* * * *

As business and social life is managed today the telephone is the backbone of our communication system. This is proved by the dependence the public places on telephone service at every turn; and that this dependence is steadily increasing is demonstrated by the constantly growing demand for more service. From year to year there are not only more people in the country to use the telephone, but as time goes on they all come to rely more and more on its service.

The public, therefore, should see to it that telephone rates are adequate to maintain the high quality of service they demand, and that the industry which is such an effective aid to business prosperity receives fair compensation for its work in promoting good times. Generally speaking, business men, regulatory commissions and economic experts recognize this necessity, but the rank and file of telephone users have still much to learn about this subject.

* * * *

Most of the trouble over telephone rates in various parts of the country is directed at Bell companies which are on the receiving end of the hot fights being waged in California, Ohio, Michigan, Missouri, New York and other states.

The actual value of the telephone service is not so much disputed in several of these cases as are certain features of the Bell policy in dealing with its local subsidiary companies. In California, for instance, city attorneys of a number of communities are objecting to the relationship between the Pacific Bell and the American Telephone & Telegraph Co., the percentage service charge levied by the parent concern against the Pacific company, and the arrangement with the Bell manufacturing plant.

Interesting developments, by the way, are promised with regard to this service charge. Originally it was 4½ per cent. In 1926 it was voluntarily reduced to 4 per cent, and now it is to be cut to 2 per cent, although the conditions said to accompany the change will not effect any material saving to the operating companies.

The 4 per cent included the rental of transmitters and receivers furnished by the American T. & T. Co. According to reports which have reached the Bell subsidiaries, under the new contract besides paying 2 per cent of their gross earnings to the parent organization they will be obliged to buy and pay for the transmitters and receivers which they heretofore obtained by rental under the 4 per cent agreement.

* * * *

It will be interesting to observe the effect of this change in the Bell contract, particularly in states where rate cases and official investigations are pending.

In Michigan, where the attorney general is attempting to forfeit the charter of the Michigan Bell Telephone Co., because of its relationship to the American Telephone & Telegraph Co., a delay has been taken in the court proceedings to study the new situation.

The attorney general of Michigan, W. W. Potter, was a member of the state commission a few years ago and at that time he declared the 4 per cent Bell charge should be reduced to 2 per cent. Now that the Bell has adopted his suggestion, it slows up his fight on the A. T. & T. organization, but he wants time to figure

out just what the reduction actually amounts to before agreeing to a truce.

Michigan newspapers record with some satisfaction the 50 per cent reduction in the charge against the Michigan Bell, but are not wholly satisfied, as they allege it is the principle involved in the tax, not the exact percentage, to which they object. Moreover, the objection will not be diminished any if later developments show that cutting the charge from 4 to 2 per cent does not, after all, effect a saving to the operating company.

* * * *

It was only last month that the telephone world heard the startling news that the Bell organization had received a dividend of nearly 50 million dollars from its manufacturing subsidiary, the Western Electric Co. At first this was expected to have some bearing on telephone rates—especially by public officials and others who had been objecting to rates, partly on the ground that Bell companies were compelled to buy from or through one concern and that they had been paying too much money for equipment and supplies.

The sudden bursting of a 50-million-dollar dividend from the Bell factory led these objectors to believe that their accusations had been confirmed, and made them hopeful that there might be an easing up in existing rates, but official statements at once blighted any such hopes.

COMING CONVENTIONS.

Arkansas Telephone Association, Little Rock, Hotel Gleason, January 16 and 17.

Nebraska Telephone Association, Kearney, Ft. Kearney Hotel, January 17, 18 and 19.

Minnesota Telephone Association, Minneapolis, Radisson Hotel, January 24, 25 and 26.

North Dakota Telephone Association, Devil's Lake, Great Northern Hotel, March 6, 7 and 8.

Oklahoma Utilities Association, Tulsa, Mayo Hotel, March 13, 14 and 15.

Texas Independent Telephone Association, Fort Worth, Texas Hotel, March 20, 21, 22 and 23.

Kansas Independent Telephone Association, Topeka, April 3, 4 and 5.

Ohio Independent Telephone Association, Columbus, Deshler-Wallick Hotel, April 11, 12 and 13.

Up-State Telephone Association of New York, Powers Hotel, Rochester, May 23, 24 and 25.

President Gifford explained that the American Telephone & Telegraph Co. would add the manufacturing dividend to surplus and ultimately invest it in telephone plant. This, he believes, would tend to defer a future increase in rates, and in that way the telephone public would eventually benefit from the profits it has paid to the Bell factory via service rates collected by Bell operating companies.

* * * *

It is inevitable that both the reduction in the 4 per cent contract and the $50,000,000 dividend will figure prominently in Bell rate cases and state commission investigations as to rate schedules in the future, whether favorably or unfavorably remains to be seen. At all events they will provoke a lot of discussion.

No official announcement regarding the change in the contract has yet been made by the American Telephone & Telegraph Co. The information that has reached the public so far has come from certain of the associated companies like the Southwestern Bell, the Michigan Bell and the Pacific Telephone & Telegraph Co., which have rate cases pending.

From this, it is inferred that the various operating companies have been authorized to reveal the revision of the contract to the public according to their individual judgment with respect to their own local conditions.

Comment on this important change is reserved until an official statement issues from Bell headquarters and there is opportunity to observe its working results in the telephone field. That it will have an important influence on the telephone rate situation throughout the country is the opinion generally held by all telephone men.

A. B. C. of Depreciation Accounting

Comprehensive Study of Depreciation—Various Methods of Computing Depreciation Detailed—Illustrations From Commission Decisions—Third Award Paper in the Plant Division of "Telephony's" Prize Article Contest

By Jos. A. Carlson,

Wire Chief, Wheaton Telephone Co., Wheaton, Minn.

The differentiation between capital expenditures and revenue expenditures is premised upon the period of life of the values received for all expenditures incurred.

Expenditures incurred during a fiscal period for items not consumed during that period, it was there noted, call for an accounting treatment which will have the effect of withholding them from the cost of operation for that period. Expenditures of this nature are set apart, as it were, in a series of capital accounts, thereby giving them a lease of life as property in service beyond the one fiscal period.

The usual fiscal period having been fixed at one year, the line of division between capital expenditures and revenue expenditures has been determined by whether or not the items which they represent have an expectation of life of more than one year.

Wasting Character of Fixed Capital.

If the lives of capital assets were everlasting, they would properly continue in fixed capital indefinitely, but practically all assets have a limited period of life. With greater or less rapidity, they are consumed or destroyed by the performance of the work for which they are used. As can well be stated, all property and equipment "is on an irresistible march to the junk heap."

This wasting character of physical property raises a further problem in accounting. The destruction and consumption of items of property having an expectation of life of more than one year are just as much a part of the cost of operation as is the cost of items immediately consumed. The only difference is in the period of time that elapses during the consumption; in the case of operating expense items, the consumption becomes complete during one fiscal period, while in the case of capital expenditures it is spread over a series of periods.

If the period of life of all properties used in operation coincided with the adopted fiscal period for determining the financial condition of the business, their total costs would be treated solely as operating expenses. There would then be no need of a distinction between operating expenses and capital expenditures.

But financial statements are needed at regular periods in the life of a utility, and

many statements may be required between the dates that many assets are acquired and the dates when they are discarded. If these financial statements are to be correct, then that portion of the service value of all capital used in rendering service, that disappears during each period must be included in the operating expenses of that period.

In other words, as a result of the wasting character of practically all plant investment (land being one of a few exceptions), capital expenditures may well be looked upon as deferred charges to operation, some portion of which must be charged off yearly.

Maintenance and Depreciation.

The gradual deterioration that property undergoes is commonly called depreciation. Much of this natural deterioration can be checked, and in certain cases prevented or overcome, by constant attention to the repair of worn or injured portions of units of property.

This work of anticipating gross deterioration of property by the expenditure of labor and money in keeping it in condition is commonly referred to as upkeep or maintenance. Maintenance and repairs are synonymous. As ordinarily defined, they include all expenditure incurred with considerably regularity, at least yearly, in the upkeep of units of property and equipment for the purpose of prolonging their period of usefulness.

Good upkeep and careful usage may arrest destruction for a time and prolong the useful life of many units of a public utility plant, but cannot prevent them from finally being placed in the scrap heap. The significance of this may be noted from the following opinion of the New York Public Service Commission (First District):

> Property cannot be made to last forever by repairing; some allowance must be made each year for the expense of eventual replacement. The consumption of capital invested in a machine that gives 10 years' service is just as much a part of the expense of operation as is the cost of materials consumed in a single day, and it would be just as false accounting to reckon profits before paying for materials consumed as to do so before meeting the cost of expired outlay on machinery and other productive plant.
>
> A true statement of expenses will, therefore, include an allowance for the replacement of tangible and intangible capital, based on the most intelligent estimate that can be made of the probable life of such capital.—1 N. Y. P. S. C. (1st Dist.) 777.

This opinion is quite clear to the effect that a public utility must provide not only for what has been described as current upkeep, but also for eventual replacement.

The differentiation between maintenance and depreciation is one of the most difficult and perplexing problems in accounting. Certain classifications of accounts make a distinction between charges for maintenance and for depreciation by specifying certain acts of upkeep and minor renewals as maintenance to be included in operating expenses.

"Without Proper Allowances," Says Mr. Carlson, "to Cover the Impairment of Capital, Which Is Known As Depreciation, the Costs of Operation Cannot Be Accurately Ascertained."

Another method of demarcation between the two that is sometimes applied, is that of classifying as maintenance charges items of renewal costing less than specified amounts. But the most common method of distinction is by general definition. This line of distinction is evidenced by the following instruction contained in the classification of accounts prescribed by the New Hampshire Public Service Commission:

> Maintenance should be understood to mean "upkeep," and should cover all expenditures for current or ordinary repairs, renewals or replacements of property resulting through wear and tear, or through those casualties which are incidental to the nature of the operation and which expenditures are necessary in order to keep the productive capacity of the plant up to its original or equivalent state of efficiency.
>
> When, however, a complete replacement of any building or structure, facility, or unit of equipment is made necessary regardless of such current expenditures, the uncurrent or extraordinary repairs, renewals or replacements made necessary will be charged to the depreciation reserve accumulated for that purpose.

The differentiated treatment accorded charges for depreciation and maintenance, respectively, here explained, is further illustrated by the account, "Depreciation," carried in this same classification, which is in part as follows:

> Every public utility shall carry a proper and adequate depreciation reserve account to cover the full replacement of all tangible capital in service.
>
> To this depreciation account shall be charged (crediting the account, Depreciation Reserve) an amount equal to the estimated annual depreciation of the tangible capital of the utility in service. The estimate here required shall be made upon a rule designed to effect by its uniform application during the life of the tangible capital in service, a charge into operating expenses of the total original cost of such capital, less its salvage or scrap value upon retirement.

Because items of current upkeep and repair, as just defined, are of such nature and occur with such regularity that they can be met out of current revenue without causing unusual fluctuations in the costs of operation, they are includible in the operating expenses. Maintenance expenses constitute one of the most important groups of operating expenses.

On the other hand, were items of extraordinary repairs or replacements and renewal charged to operating expenses directly as they were incurred, they would occasion extreme fluctuations in the yearly net profits. Were the replacement of a machine, which had suffered a gradual diminution in value during 10 years of life in service, charged to the operating expenses of a yearly period, this one year would thereby be burdened with a part of the cost of operation for each of the preceding nine years.

To avoid such abnormal fluctuations and inaccurate charges against the revenue of one year, an accounting procedure has been framed so that the cost of renewals and

This Article and Its Author.

The various phases of depreciation are of increasing importance to the telephone field. During the past two years the subject has been given a great deal of thought by telephone managers and engineers and accountants. The Interstate Commerce Commission, after considerable study, issued an order on depreciation which was to have been effective the first of this month. Operation of the order, however, was postponed pending further hearing on several points.

In view of these developments, Mr. Carlson's article on the "A. B. C. of Accounting for Depreciation" is particularly timely. Not only does Mr. Carlson present the reasons for consideration of depreciation, but he also clearly shows how it should be handled.

Mr. Carlson first engaged in telephone work in Wheaton, Minn., some 18 years ago. After three or four years, he engaged in other fields of endeavor, and six years ago returned to the Wheaton Telephone Co. Since that time he has studied the theories of telephone practice, and has endeavored to coordinate theory with practice.

We are sure that "Telephony's" readers will have a much clearer conception of depreciation and its application to telephone practice after careful reading and study of Mr. Carlson's article.

replacements not includible under ordinary maintenance may be distributed equitably from year to year under the head of depreciation.

Thus, while depreciation in the sense that it is used to signify a lessening in value, includes all deterioration in service value, when used in an accounting sense purely, it should be understood to embody only losses arising out of physical and functional decay not compensated for by current repairs.

Causes of Depreciation.

Depreciation arises from many causes. These causes may be classified in the first instance as physical and functional. Physical depreciation may be thought of as arising from depreciation due to use and deterioration due to age, while functional depreciation results from obsolescence and from inadequacy. Inadequacy is frequently referred to as supersession.

The action of these several elements is quite apparent; for example, it is seen in an envelope folder containing papers, which lies upon the desk at which this article is being prepared. The folder has been in use for some time. As a result of such use, it is very much worn on the edges and, in fact, is slit down one side, although a similar slit was mended some time ago by the use of a generous supply of mucilage, an act of maintenance. This wear and tear due to use has seriously affected its serviceability.

A further examination of the folder exhibits the fact that it has faded in color. Compared with another folder of similar material, it is noted that the paper of which it is made has lost its "life," so to speak, because it has grown stiff and shows signs of cracking. In other words, the normal action of time, as distinguished from the use to which the folder has been put, has taken its toll.

A further comparison of the folder with one lying on the desk adjacent to it shows that both were supplied by the same manufacturer. The former shows an earlier patented date than the latter, which, it is also noted, has many advantages over the former, due to improvements in the art of making filing folders.

While this element of functional depreciation—that due to obsolescence—is not effective in the case of this folder, it is nevertheless apparent, and is typical of the fact that the need for the eventual displacement of old and antiquated property with newer, more modern, and more economical equipment must not be ignored.

A final glance at the folder shows that the papers and documents which it was designed to contain have practically outgrown it. Only with difficulty will it hold those already accumulated, and there are more still that should be filed in it. The serviceability of the folder thus has been affected by still another form of functional depreciation. This is commonly called inadequacy or supersession, and signifies the inability of an asset to meet the service demands for which it was designed.

There is a further type of deterioration or destruction of capital distinguishable from physical depreciation and functional depreciation, which is often classified as an element of depreciation, and as such is called contingent depreciation. It comprises losses due to accidents, such as from explosions, floods, etc.; and disease, which includes such things as electrolysis, crystallization, injury to equipment by insects, etc.

Losses of this nature, however, are of such indefiniteness, so extremely uncertain, and so hard to determine in advance, that in public utility accounting practice they are not ordinarily classified as factors of depreciation. They are rather usually considered as contingencies, to be met directly out of operating expenses or, if they are abnormally large, to be distributed over a period of years in the future.

It was noted, in the case of the filing folder, that all the causes of depreciation enumerated had operated simultaneously to some extent to cause a lessening in its value. This may be true in the case of practically any unit of property, but usually all the factors do not operate upon the same unit, and perhaps never in the same degree.

If a unit has depreciated due to more than one cause, the depreciation factor which is the greater determines the depreciated condition of the unit. The effects of depreciation from one cause are not added to the effects resulting from the other cause or causes. The factor of depreciation which is the greater is said to constitute the effective depreciation of the unit. Depreciation due to inadequacy constitutes the effective depreciation in the filing folder, because it is clear that it must shortly be abandoned for that reason.

When depreciation is thought of as affecting only one unit of equipment in a plant, it is known as unit or individual depreciation; whereas the aggregate depreciation on the whole plant is called composite depreciation.

Depreciation and Depreciation Allowances Defined.

The foregoing paragraphs have discussed generally the wasting character of capital and the elements which cause this impairment. They have indicated, also, what is meant by the general term, depreciation. With this discussion in mind, it is pertinent at this point to note, in part, regulation 16 of the rules and regulations concerning the improvement of navigation, prescribed by the Federal Power Commission, which is as follows:

REGULATION 16. SEC. 2: DEPRECIATION DEFINED: By the term "depreciation" is meant the losses, either temporary or permanent, suffered through the current lessening in service value of tangible physical property due to wear and tear from operation and the action of time and the elements which are not replaced by current repairs, as well as those ordinary losses in capacity for use or service sustained by physical property from obsolescence or inadequacy, due either to age, physical change, or supersession resulting from new inventions, discoveries, change in popular demand, or requirements of public authority; also decreases in the service value of intangible property and tangible non-physical property through lapse of time or other causes.

This rule embraces in concise and comprehensive form the substance of the foregoing paragraphs. It is one of the most recent specific definitions of depreciation promulgated by a public tribunal. It may be said to provide the latest declaration of accounting conception of depreciation.

The fact was also brought out in the foregoing that any fair statement of annual costs of operation must include an allowance for depreciation, as just defined. This allowance is usually referred to as an "allowance for depreciation" or merely as "depreciation." It is the amount which is estimated to be necessary to offset the depreciation as it accrues. These annual depreciation allowances are justified on the ground that the utility is entitled to receive revenue sufficient to preserve the public utility property from impairment.

Attention also was called to the fact that the depreciation allowance is made by charges to a special operating expense account called depreciation. The definition of depreciation account contained in the classification of accounts of the New Hampshire Public Service Commission, has been quoted. It is a typical definition of this account.

It will be noted that this account provides that the estimated annual depreciation, which should be based upon "a rule designed to effect by its uniform application during the life of the tangible capital in service, a charge into operating expenses of the total original cost of such capital, less its salvage or scrap value upon retirement," shall be carried to an account called depreciation reserve. The definition of this latter account is here quoted:

Depreciation Reserve.

To this account shall be credited regularly all charges to the account, "Depreciation" (hereinafter described), the income from the investment of any money or from any security belonging to the depreciation reserve fund, and any other appropriations which may have been made to it.

When through wear and tear in service, inadequacy, supersession, or obsolescence, any building, structure, facility, or unit of equipment originally charged to property is no longer economically reparable, and when, in order to keep the productive capacity of the plant up to its original or equivalent state of efficiency, it is necessary to make a complete replacement of such building, structure or unit of equipment, the money cost of the original unit replaced, and which has been charged to property (estimated if not known, and if estimated, the basis thereof shall be shown in the record entry), plus the cost of removing same, shall be charged to this account "Depreciation Reserve," and the

amount at which it was charged to the property account shall be credited to such property account, and the cost of removing the same shall be credited to cash or to the appropriate liability account. The cost of the new unit is then charged directly to the appropriate plant account.

The salvage or scrap value of any unit of equipment retired from the service or replaced by any other unit would be credited to this account.

The ordinary repairs which occur from day to day, and do not necessarily increase the life of the plant, shall be charged directly to operating expenses.

An analysis of the charges and credits to this reserve will be called for in the annual report to the public service commission.

Stated simply, the depreciation reserve is the account in which the yearly allowances for depreciation are placed so that the allowances may be available when needed to make renewals. The procedure creating it results in a withholding of a certain portion of the profits of the utility for future use by charging yearly against gross income an amount estimated as sufficient to meet the future requirements for replacements and by creating a corresponding liability account.

Being based upon such a rate as will entirely wipe out all depreciating plant assets over the period of their probable lives, there should be a direct relation between the depreciation which has actually accrued at any given date and the depreciation reserve. The reserve represents the composite depreciation of the plant.

Basis of Estimating Depreciation.

A determination of the allowances for depreciation to be made yearly involves the making of estimates of the probable lives of all classes of property in a public utility plant. The making of these estimates is the most difficult feature about the treatment of depreciation.

The reasons for this are found in the many factors causing depreciation already considered. Yet there are, in addition, many other conditions which affect the period of useful service which units of property will render, and which consequently must be heeded in estimating depreciation. Type of construction, quality of material, adaptation of designed use, intensity of use, weather and soil conditions, invention and progress in the art, and the maintenance policy of the utility, are only a few of these conditions.

In view of these many varying factors tending to affect the process of depreciation, and the importance of the subject itself, most of the larger public utilities have come to recognize the need for specially trained experts upon the subject. Many have organized engineering departments, including therein staffs which make continuous studies of the lives of property and gather data upon the subject from their own experience and from the experience of other utilities. The regulatory commissions, also, have staffs of similarly trained technical experts.

The Interstate Commerce Commission under recent legislative enactment is required to prescribe bases for estimating depreciation, and under this legislation has organized a division of depreciation. The experience accumulated from the scientific studies conducted by these technically trained bodies is resulting in the determination of depreciation with a reasonable degree of certainty.

Originally, estimates of the probable lives of different classes of public utility property were determined almost exclusively from the application of general life tables. But experience in the use of life tables has proved that accurate results cannot be obtained by the strict application of these tables alone, because of the many local conditions that shorten or prolong the lives of particular units of property.

For instance, cast-iron pipe is estimated to have a life in the ground of approximately 100 years, yet in certain instances pipe that is known to have been in the ground for that period has been found still to be in excellent condition; while, on the contrary, in other instances, similar pipe has been found exhausted in much less time than 100 years. As a result of experiences of which this is an example, the weight of opinion today is that, in order to reach a correct judgment, property must first be carefully inspected and tested, and then the knowledge of its serviceability and condition thereby acquired must be used in consulting life tables and other data covering like property operating under similar conditions.

The method most frequently employed in estimating the probable life of a plant as a whole, consists of grouping certain classes of units which have the same proportionate scrap value and estimated life, and of estimating the amount of depreciation needed for each class and thereupon of dividing the sum of all the classes into the total cost new of all the depreciable property less its scrap value. Life estimates made in this way require the use of information as to (1) the cost of the property; (2) date of installation; (3) the probable or estimated life, and (4) the salvage, scrap or minimum service value of the unit proposed to be retired.

With the use of information compiled in this way, depreciation is finally arrived at, not alone by the use of mortality tables, but by careful inspection of the units of property themselves.

Methods of Computing Depreciation.

There are several different methods of computing the yearly composite depreciation after the information referred to in the preceding paragraph has been obtained. The methods of principal importance are (1) the straight-line method; (2) the sinking-fund method; (3) the annuity method, (4) reducing-balance method.

While each of these methods is premised upon the theory that the depreciation reserve must accumulate such an aggregate sum as will entirely wipe out the original cost of the depreciable assets less their scrap value upon retirement, each method differs from the others to a certain degree in the basis of the annual allowances. The straight-line and sinking-fund methods are in use almost exclusively in connection with public utility accounting. Accordingly, the theory of only these two methods will be explained here.

Class	Life	Cost of Reproduction New	Scrap Value	Cost New Less Scrap	Annual Per Cent of Depreciation	Annual Amount Required to Cover Depreciation
A	5	$ 210	$ 0	$ 210	20.00	$ 42
B	8	7,124	14	7,110	12.50	889
C	10	17,361	153	17,208	10.00	1,721
D	12	26,272	0	26,272	8.33	2,188
E	15	143,470	11,920	131,550	6.67	8,774
F	16	65,632	33,374	32,258	6.25	2,016
G	20	113,336	9,239	104,097	5.00	5,205
H	25	43,747	7,631	36,116	4.00	1,445
I	50	14,337	0	14,337	2.00	287
J	60	1,165	0	1,165	1.67	19
K	75	21,920	0	21,920	1.33	292
		$454,574	$62,331	$392,243		$22,878
12 per cent overhead				47,069		2,745
				$439,312		$25,623

Table No. 1. Straight-Line Method.

The straight-line method of computing depreciation presupposes that the property depreciates uniformly and in a straight line during its entire estimated life. That is, under this method, a unit which cost $100 and is estimated to have a life of 10 years is assumed to depreciate $10 each year, if it has no salvage or scrap value. Under this method, if the factors from which the reserve is computed are correct, the remaining value, plus the depreciation reserve, plus the salvage must always equal the original cost.

Straight-line depreciation is computed by dividing the original cost less scrap value of the depreciable property, of each group of units having the same period of estimated life, by their estimated life, and ascertaining the sum of these allowances. The aggregate annual allowance having been determined, the rate per cent of depreciation is obtained by dividing the total annual allowance by the original cost less

scrap value of the depreciable property.

$$\text{Average life} = \frac{392{,}243}{22{,}878} = 17.15 \text{ years.}$$

FORMULA—S = total cost new less scrap; V = total annual fund; N = life. $N = S/V$.

The usual form of a computation of straight-line depreciation is illustrated by Table No. I. This table shows the balance between the cost and the scrap value of the property to be $439,312, and the annual amount to be set aside for depreciation to be $22,878. It shows, also, that the annual rate for depreciation varies from 20 per cent for the property in the five-year group to 1.33 per cent for the 75-year group. The rate of depreciation for all these groups taken as a whole, including overhead, is 5.83 per cent, of the depreciable amount.

It will be noted that the overhead charges have been shown by one specific item, and that they have been assumed to depreciate in the same ratio as the direct charges, which may not necessarily be true because at least some overhead costs are not depreciable.

The straight-line method is the simplest of all the plans for computing depreciation. No computations other than ascertaining the quotient of the cost of the property divided by its estimated period of life are involved. The specific amounts thus found to be necessary to set aside each year are assumed to accumulate without interest until the end of the period of the estimated life of the asset, at which time there is a reserve sufficient to replace the retiring asset.

As distinguished from the straight-line method, which as noted, accumulates the allowances without interest, the sinking-fund method of computing depreciation is premised upon the theory that the aggregate depreciation reserve is accumulated in part from the yearly allowances upon a compounded basis, it being assumed that they are invested and bear interest.

Upon this theory, if, upon a unit costing $100 and having a life of 10 years without any scrap value, an allowance of $10 per year for depreciation were made on the straight-line basis, and this allowance were placed at interest each year, the interest would augment the allowance and in turn also bear interest. Of course, under this procedure the aggregate allowance at the end of 10 years would exceed $100. That is to say, if the depreciation allowances when computed according to the straight-line method, are deposited in a sinking fund, they will yield at the end of the estimated life of the unit a sum in excess of the amount necessary to replace the unit. Accordingly, such allowances should be reduced to the point at which, when so deposited and invested, they will yield a sum exactly sufficient to meet the cost of replacement. This is the theory of the sinking-fund method.

Table No. II shows how the amount that must be charged to operating expenses annually, under the sinking-fund method, is arrived at. The hypothetical plant is the same one assumed in Table No. I.

Class	Life	Cost of Reproduction New	Scrap Value	Cost New Less Scrap	Annual Per Cent Reserved on 4 Per Cent Basis	Annual Fund
A	5	$ 210	$ 0	$ 210	18.46	$ 39
B	8	7,124	14	7,110	10.85	771
C	10	17,361	153	17,208	8.33	1,433
D	12	26,272	0	26,272	6.65	1,747
E	15	143,470	11,920	131,550	4.99	6.564
F	16	65,632	33,374	32,258	4.58	1,478
G	20	113,336	9,239	104,067	3.36	3,498
H	25	43,747	7,631	36,116	2.40	867
I	50	14,337	0	14,337	.65	93
J	60	1,165	0	1,165	.42	5
K	75	21,920	0	21,920	.22	48
		$454,574	$62,331	$392,243		$16,543
12 per cent overhead				47,069		1,985
				$439,312		$18,528

Table No. II. Sinking-fund Method (4 per cent)

$$\text{Average depreciation} = \frac{16{,}543}{392{,}243} =$$

.04217. Average life (as calculated in Table No. III), 17.01 years.

It will be noted that under the sinking-fund method the amount necessary to be set aside yearly and charged to operating expenses is $16,543, or about 4.20 per cent on the property. These allowances are presumed to carry compound interest at the rate of 4 per cent and this interest is also accumulated in the reserve.

The property being classified by groups the units of which have the same estimated periods of life, the annual allowance for each group is derived by multiplying the cost, less scrap of each group, by a rate per cent taken from a sinking-fund table. The sum of the allowances for all the groups exhibits the total annual allowance exclusive of interest. The composite rate per cent is obtained by dividing the total annual allowance by the original cost, less scrap, of all the depreciable property.

Year	(Table No. I) Straight-Line Method	(Table No. II) 4 Per Cent Sinking-Fund Method
1	$ 22,878	$ 16,543
2	22,878	17,205
3	22,878	17,893
4	22,878	18,609
5	22,878	19,352
6	22,878	20,126
7	22,878	20,932
8	22,878	21,769
9	22,878	22,641
10	22,878	23,545
11	22,878	24,487
12	22,878	25,468
13	22,878	26,485
14	22,878	27,546
15	22,878	28,647
16	22,878	29,792
17	22,878	30,985
17.15	3,431	165*
Total	$392,357	$392,190

*.01 Year.

Table No. III. Comparison of Annual Reserves Set Aside to Cover Depreciation Under Straight-line and Sinking-fund Methods.

Table No. III shows a comparison of the annual allowances under each method shown in Tables Nos. I and II, respectively.

While under the straight-line method the annual allowances are shown to be identical each year—namely, $22,878—under the sinking-fund method the allowance is $16,543 for the first year and gradually increases to $30,895 for the 17th year.

This gradual increase results because the respective yearly amounts include the yearly allowances shown in Table No. II as well as the interest that accrues upon them. The amount of the annual interest increases as the balances upon which it accrues increase, and hence the sums of the two items increase in the same measure.

The straight-line method of computing depreciation is used more often by public utilities than the sinking-fund method. This is true, probably, because it is simpler and more easily understood. The sinking-fund method, however, is more scientific and more equitable. The yearly allowances being operating expenses and being less under this method, the operating expenses are less. In other words, operating expenses are reduced by virtue of being given the benefit of the interest accumulations on the allowances.

In substance, this means that under the straight-line method the owners of the utility are given the benefit of the full use of the allowances, whereas under the sinking-fund method the rate-payers are given credit upon the total cost of rendering the service being furnished them, to the amount of the interest that is computed under the sinking-fund.

Because of the equity in this theory, the rate at which the sinking-fund is accumulated is usually fixed at that which the reserved allowances are able to earn. A point of further advantage in the sinking-fund method lies in the fact that the total yearly allowances are low during the early years of operation when the earnings also are low

(*Please turn to page* 28)

What Is Your Company Doing?

Chats About Company Doings.

By Stanley R. Edwards.

Beginning with the first payday in 1928, January 4, every employe of the Home Telephone & Telegraph Co., Fort Wayne, Ind., will receive a "Vest Pocket Magazine" with his pay check or in his pay envelope.

This miniature magazine will be issued every payday during the year to every employe of the company with the compliments of the management, in order to give each employe the benefit of helpful and valuable information, thoughts and suggestions.

The "Vest Pocket Magazine," while probably the smallest magazine published, is replete with wholesome reading matter, illustrations, humorous sayings, etc. It only takes a few moments to read all it contains, but it proves very interesting and suggests many things of value to its readers.

Addressed to "The Editor, Telephony, 608 S. Dearborn St., Chicago, U. S. A.," an envelope containing a Christmas card and bearing a Jerusalem, Palestine, postmark came into the office last week. Coming from the city in which nearly 2,000 years ago occurred the birth of Christ, this Christmas card and its message to the telephone operators of America are of particular interest.

In order that our readers may have the message in its original form, the card is reproduced on this page.

The speakers' bureau of the Lincoln Telephone & Telegraph Co., Lincoln, Neb., maintained as one of the important points of contact with the public and a means of putting over the story of the business, is increasing its activities.

M. T. Caster, plant superintendent, recently addressed the service employes of the Iowa-Nebraska Light & Power Co. at York; H. F. McCulla, assistant commercial superintendent, addressed the Geneva Chamber of Commerce at its annual dinner; General Manager J. H. Agee was one of the speakers at the South Dakota Telephone Association at Huron, S. D., this week; and C. W. Motter, director of public relations, is to address the Nebraska City Rotary Club on February 8.

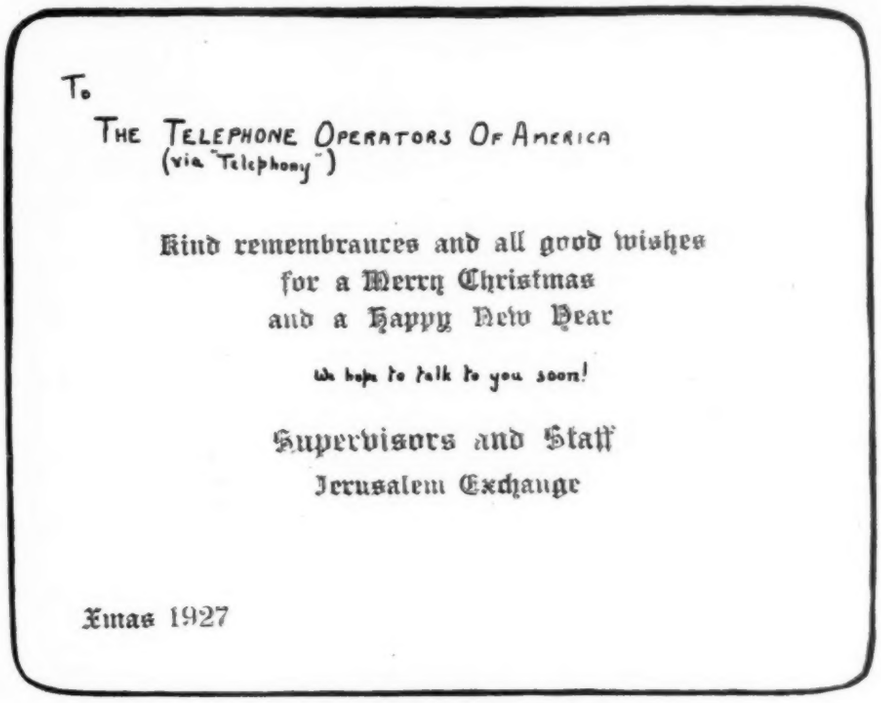
Los Angeles has signed its first "sky-lease"!

This lone illustration is provided by the building immediately north of the Southern California Telephone Co.'s quarters at 620 South Hill street.

A "sky-lease," consists of the leasing of the space differential between a high and low adjacent building, such space being utilized by the owners or lessees of the higher structure in which to erect an addition to their own building on top of the lower neighborhood structure.

In the case of the Southern California Telephone Co.'s unique lease, the concern found it necessary to expand the Hill street offices, and not wishing to build higher into the sky, secured a sublease to the roof area of the building next door.

On this the telephone company erected a one-story addition which it uses as a restroom and cafeteria for operators. The contract was arranged on a short term basis and expires on December 31, 1929, at which time, it is understood the company will seek larger quarters.



Greeting Card Received from Jerusalem.

The Southern Bell Telephone & Telegraph Co., has recently adopted in Nashville, Tenn., the plan of furnishing stickers of various types to business firms. The stickers are attached to all correspondence, price sheets, etc., with the idea of familiarizing the out-of-town customers with the dealer's telephone number.

The stickers are made in a neat and concise form of gummed paper and are 2 inches by 1¾ inches in size. There are two kinds; one is when the buyer calls at his own expense and the other instructs the customer to call his order at the dealer's expense.

The telephone company has been experimenting with these stickers and checking the results and in every instance they have proved most effective. Several thousand are already being used by Nashville dealers and orders placed for several thousand more. The company furnishes these stickers free of charge.

Another avenue of interest which the telephone company has been working on is moving pictures. For some time the company has been building up a library of educational picture films which compare favorably with those of any other company in the country. Indorsements have been received from the leading educators in the South.

Very recently several new films have been released. The most interesting of these are films on transatlantic service, television and telephotography.

The films are non-technical in character and give graphic description of these innovations. None of these films contain any sort of advertising matter. They are furnished without charge by the Southern Bell Telephone & Telegraph Co.

A machine which tests the effectiveness of a person's telephone voice was on display recently in the business office of the Southern California Telephone Co. in Los Angeles.

P. M. Davies, engineer of the company who supervised the construction of the machine, is particularly interested in getting people to talk into a telephone properly, so as to be best heard at the other end of

the line. He says that all people with ordinary voices can learn quickly how to use them to the best advantage over the telephone, and practically all who are not heard well can remedy the situation by talking in an ordinary conversational tone with their lips just clearing the mouthpiece of the transmitter.

Program for Annual Meeting of Arkansas Telephone Association.

The annual meeting of the Arkansas Telephone Association is to be held at the Gleason Hotel, Little Rock, next week, Monday and Tuesday. An attractive and interesting program has been prepared as follows:

MONDAY, JANUARY 16, 10, A. M.

Call to order by President E. P. Ladd, Star City, owner, Star City Telephone Co.

Reports of officers and committees.

President's remarks, by E. P. Ladd, Star City.

"Supervision of Public Utilities by Regulatory Bodies," by E. B. Downie, general attorney, Southwestern Bell Telephone Co., Little Rock.

"Best Methods and Policies for Handling Collections of Rentals and Toll Charges," by E. B. Rhodes, manager, Home Telephone Co., Fordyce.

"How We Can Improve the Physical Condition of Our Properties to Better Serve Our Patrons," by E. G. Greber, division plant superintendent, Southwestern Bell Telephone Co., Little Rock.

"Efficient and Economical Methods of Operating Telephone Properties," by W. M. Graham, manager, Clarendon Telephone Co., Clarendon.

"Telephone Accounting According to Interstate Commerce Commission Plan, Class C," by F. G. McLane, manager, Johnson County Telephone Co., Clarksville.

"My Experience in Dealing with City Council and Railroad Commission Relative to Increase in Exchange and Farmer Line Rates," by R. E. Norris, manager, Berryville Telephone Co., Berryville.

Appointment of nominating committee.

TUESDAY, JANUARY 17, 10 A. M.

Reports of committees.

"By-Products and Their Sale in the Telephone Business," by W. S. Pedley, acting general manager, Southwest Telephone Co., Little Rock.

"Financing for Extensions, etc., of Property," by Thos P. Stahl, president, Siloam Springs Telephone Co., Siloam Springs.

"The Telephone Directory from an Information and Revenue Standpoint," by H. M. Beers, directory supervisor, Southwestern Bell Telephone Co., Little Rock.

"Construction of Rural or Company-Owned Telephone Lines Beyond City Limits," by G. E. Sites, general plant superintendent, Southwest Telephone Co., Little Rock.

Five-minute talks will be given by members present on the following subjects:

"Promptness in Dealing with the Public."

"Newspaper Advertising."

"Safety Methods in Telephone Work."

"Automobile Costs."

"Experience in Coping with the Willful Breaking of Insulators."

Election of officers.

Dual System at Northfield, Minn., Eliminated by Tri-State Buying.

The plant and property of the Northfield Telephone Co., operating approximately 450 stations in and adjacent to the city of Northfield, Minn., passed into the hands of The Tri-State Telephone & Telegraph Co., St. Paul, Minn., on January 1. This transfer of telephone property, culminating as it does a series of conferences which extended over a period of several years, virtually eliminates the last point in Southern Minnesota where competitive conditions existed.

Since 1906, when the Northfield Telephone Co. was organized, the city, which now has a population of about 4,500, has supported two systems. Some of the side lights on the Northfield situation, developing as the years brought changing conditions, were most unique.

The Northfield company came into existence with the avowed purpose of supplying a cheaper and better telephone service than the service then being rendered there by the Northwestern Bell Telephone Co. Not having access to the Northwestern's long distance lines, the Tri-State built into the city and connected its toll lines with those of the Northfield company.

Until 1918, when the division of Minnesota territory occurred between the Tri-State and the Northwestern Bell, this arrangement was in effect. Then, the Tri-State suddenly found itself in possession of the Northwestern Bell exchange at Northfield and, for the first time, in direct competition with its former ally, the Northfield Telephone Co. This peculiar situation, however, evoked no ill-feeling. It was recognized on all sides as merely another turn of the wheel in the evolution of the telephone situation which, in one way or another, affected the entire state.

It was not long thereafter that the subject of consolidation of the two systems first began to receive attention from business interests and other subscribers. These efforts, although sporadic, were marked by several instances when negotiations were actually begun between the two companies. On one of these occasions an attempt was made to finance the Northfield company to a point where it could buy out the Tri-State. All of these movements failed, although the Tri-State was on record as willing either to buy or to sell.

About a year ago another consolidation move started and, after two adverse votes by the stockholders to sell, the project went over by the overwhelming vote of 90 to 31. The price paid by the Tri-State was $19,000 which, it is claimed, will net each stockholder about two dollars for each one dollar originally invested.

Northfield telephone users are reported as well pleased over the new arrangement, although the Tri-State company has announced no great amount of reconstruction work will be possible before spring. Regarding this happy solution of the vexing telephone problem in that city, the Northfield News recently made the following editorial comment which seems to express the general sentiment among residents and subscribers:

"It is of considerable importance to bear in mind that competition as the life of trade does not longer hold true in the case of the telephone business in Minnesota now that the state supervises rates and service. The Tri-State company's record of service and the helpful and cooperating spirit of its officials in their dealings with the local company also have a tremendous bearing on the whole situation. Judging by this record and this attitude, we have every confidence that Northfield community will not regret the decision that has been made."

Data Regarding Telephone Growth and Use in Sweden.

Near the end of an article published in TELEPHONY of November 26, on page 35, it was stated that Stockholm has 221 telephones per 1,000 population. The L. M. Ericsson Telephone Mfg. Co., Stockholm, advises that this is not quite true.

"As you may gather from the telephone and telegraph statistics of the world, published by the American Telephone & Telegraph Co.," it writes, "the number of telephones per 1,000 population in Stockholm was 281 already on January 1, 1926. At present there are about 290 telephones per 1,000 inhabitants."

Prices in the Metal Markets.

New York, January 9.—Copper steady; electrolytic, spot and futures, 14½c. Tin firm; spot and March, $56.87. Iron steady; No. 2, f. o. b. Eastern Pennsylvania, $19; No. 2, f. o. b. Buffalo, $16.50@17.00; No. 2, f. o. b. Alabama, $16.00. Lead steady; New York spot, 6.50c; East St. Louis spot, 6.30c. Zinc steady; East St. Louis, spot and futures, 5.65@5.70c. Antimony, spot, 11.00c.

Ohio Bell Company Splits Its Operating Organization.

The Ohio Bell Telephone Co. on January 1 divided its organization into two operating areas, with a general manager at Cleveland in charge of the northeastern area, and another at Columbus in charge of the southwestern area.

The northeastern area includes the two Cleveland divisions and the Akron division,

comprising chiefly the industrial centers around these cities and Canton, Youngstown, Massillon, Ashtabula and Mansfield. The southwestern area is composed of the Columbus, Dayton and Toledo divisions.

J. F. Carroll, Jr., formerly general traffic superintendent of the company, has

J. F. Carroll, Jr., Former General Plant Superintendent, Is Now General Manager, Northeastern Area, Ohio Bell Telephone Co., Cleveland.

assumed office as general manager of the northeastern area, with headquarters at Cleveland. F. M. Stephens, formerly general plant superintendent, is general manager of the southwestern area at Columbus. General headquarters remain at Cleveland, where E. F. Carter, president, and Randolph Eide, vice-president, have their offices.

Department heads for the northeastern area are G. A. Kositzky, chief engineer; E. H. Gustafson, general commercial manager; R. P. Bunyan, general plant manager; and J. A. Greene, general traffic manager.

Southwestern area officials are A. F. Wilson, chief engineer; F. R. Eckley, general commercial manager; W. T. Anthony, general plant manager; and Walter Malloy, general traffic manager.

W. G. Barry, formerly general commercial superintendent, has been appointed assistant vice-president, in charge of various activities of state-wide application. A. F. Hardman, formerly assistant to the general manager, has become assistant to the vice-president, continuing in general charge of publicity and advertising.

Mr. Edie, announcing the plans, said:

"The company's telephones in Ohio now exceed 603,000, about 40,000 of which were added in 1927. The year 1928 indicates continued growth. More than $17,000,000 was expended on additions and betterments in 1927 and it is predicted that 1928 will see a growth of at least 40,000 telephones and gross expenditures to the property of $17,500,000.

The change in organization is to insure the efficient supervision of the company's property and the service to the public."

There were practically no changes in local officials, and division officials were changed to provide only for the formation of a new division with headquarters at Dayton. New officials there are A. L. Jones, division commercial manager; E. H. Pritchard, division traffic superintendent; and J. H. Beilstein, division plant superintendent.

Transatlantic Service's First Anniversary; Business Increasing.

In reply to questions regarding the transatlantic telephone service, one year old on January 7, the American Telephone & Telegraph Co. issued the following statement last Saturday:

"Transatlantic radiophone service, inaugurated 12 months ago today, enters its second year with the whole United States, Canada and Cuba in direct telephone communication with Great Britain, and with extensions to points in the continent a probability for the near future.

When, a year ago, transatlantic telephone communication was made available to the public, two important questions faced the officials of the American Telephone & Telegraph Co. who were responsible for its operation in America. Would the wire-and-radio service stand up successfully against atmospheric conditions prevailing at all seasons? And would the public find the service enough of a convenience in social and business matters to justify this addition to the country's long distance telephone facilities?

The answer in each case is affirmative. The statistics show that the results exceeded the expectations when the service opened.

Throughout the first twelve months, transmission was generally good. The great majority of conversations was carried on distinctly and free from interruption. Notwithstanding occasional interference by static during the summer, a very high percentage of the calls filed during the year was put through. Atmospheric conditions were met so successfully that the daily period of service, originally planned for 4½ hours only, was later extended to 10½ without lessening the efficiency of the service.

Public attention is focussing more rapidly on this overseas speech link with the Old World than in the case of preceding very long telephone routes. Already many more calls are speeding daily over the Atlantic than were crossing the continent two years after the New York-San Francisco line opened in 1915.

That the telephone-using public is growing more and more to appreciate the possibilities of overseas telephone communication is shown by the steady upward trend of calls. Discounting the months when 'curiosity' calls swelled the total, the daily figures have practically doubled in the interval from April, 1927, to the end of the year. At the same time the character of the calls has changed. Calls for social purposes, during the first six months of operation, far outnumbered business calls. The difference has steadily lessened, however, until in September business call gained the ascendency. The gap has been widening ever since.

As transatlantic telephone service enters its second year, its future seems decidedly encouraging. It has passed successfully through the opening phases of long distance telephone service and has established itself as an active factor in international communication."

Transatlantic to Germany; Berlin to South America Next.

Regular radio telephone connections between Germany and the United States will be realized soon it was announced in Berlin on January 3. Negotiations with American companies for the connection of Germany with the wireless London-New York telephone system are nearing a successful conclusion.

Messages from Berlin will be sent to the British capital by cable and there transferred to the radio.

The only big drawback is the question of cost, for about $25 will be charged for a one-minute talk. It is expected, however,

F. M. Stephens, Former General Plant Superintendent, Is Now General Manager, Southwestern Area, Ohio Bell Telephone Co., Columbus.

that a reduction of tolls will be possible after the installation of the service.

Wireless telephone service with South America will probably be opened early in the spring. Tests made between Berlin and Buenos Aires last summer proved entirely successful, but the Argentine capital was not able to reply to the messages received on account of the lack of a sender.

Requirements for Successful Study

Second of Series of Articles Containing Valuable Information and Suggestions for Those Desirous of Self-Improvement Through Home Study—Mental and Physical Requirements Which Are Very Beneficial in Profitable Study

By M. E. Layton

"The bow that's always bent will quickly break;
But if unstrung 'twill serve you at your need.
So let the mind some recreation take
To come back to its tasks with fresher heed."—Phoedrus.

In order that the student may learn to do his own thinking more effectively, certain requirements for successful study must be observed. If he finds himself unable to study or to learn, his inability may be due not to lack of brains, but to some other cause—oftentimes merely physical—which can usually be remedied. A wholesome mind and a healthful body usually go hand in hand.

Physical Requirements.

FIXED TIMES FOR STUDY: The student should be regular. He should be systematic. He will do well to remember that what he is reading and studying is extremely valuable to him, and that he cannot afford to give up to anything else the time that belongs to his reading or study period.

If possible, let him have some regular study time in the morning. He can do more in the morning hours when his mind is fresh than he can in the evening when he is weary with the day's work. He will find it worth while, if possible, to get up a little earlier in the morning and spend the time thus gained in study. Even 15 minutes spent in reviewing what he read the night before will prove of great assistance in fixing in his memory what he has learned.

FREEDOM FROM FATIGUE: After a day of hard labor, or of exhaustive activity, it is sometimes difficult to study. It has been said that the brain is a part of the body and subject to laws like the rest of the body. When the rest of the body is fatigued, the brain is likely to be tired also. This is an additional reason for allowing some time to read and study in the morning if possible.

In case of extreme fatigue, the student may find it best not to attempt to study until he has rested. Let him lie down and allow his muscles to relax for a short time, and he will find the mind more ready for duty.

It will be necessary to be careful, however, not to acquire the habit of "dozing off" soon after the evening meal. This sleeping habit, or state of lethargy, has prevented many a person from making his evening hours pay big dividends. There is time enough to sleep when a person has gone to bed.

GOOD EYESIGHT: If the student is troubled with headaches during his study period and finds his thinking difficult and not very clear, it may be that his eyes are defective. Glasses may be needed. Just any pair of glasses that seem to fit the eyes will not do; such glasses may ruin the sight for life. A good oculist should be consulted if there is any reason to suspect that the eyes are causing the trouble.

Memory Training Requires Real Effort.

Any youth or man who desires to train his memory must be prepared to pay the cost. He must be prepared to forego an endless round of even harmless pleasures. He must not hope to shine continually and conspicuously in social or society circles during his formative years. He must study while others play. His reading must be limited very largely to books and magazines and papers which will help him to acquire facts and a better understanding of whatever business or subject he is determined to master.—James A. Farrell, President, U. S. Steel Corp.

PROPER EATING: If the student is in the habit of eating a big meal in the evening, he may find himself unable to study immediately after. The nervous system is so strongly affected by the condition of the stomach that he will find it profitable to eat with moderation when a study period is immediately to follow.

Care should be taken to see that the food is wholesome and not difficult to digest. It is never well to eat too much meat. Heavy, indigestible pastry should be avoided. When his stomach is unduly burdened with food, the student thinks slowly. His mind is stupid.

PROPER VENTILATION: A common fault among householders is to keep their houses almost hermetically sealed, especially in cold weather. Both body and brain work better in fresh air, especially the brain. The student should see to it that the room in which he studies is sufficiently ventilated. Should he feel drowsy in the midst of his studies, let him open his windows for a few minutes.

FREEDOM FROM DISTURBANCES: In many homes, especially where there are children, there is constant noise. Some persons, not accustomed to study, find it difficult to work effectively in the midst of confusion or even with another person in the room.

If this be true in the student's case, then he should try to have a place where he can be alone as much as possible while he is studying. If this cannot be arranged, he must nevertheless continue to study, and in the course of time the things that distracted at first will pass unnoticed. Let his study time be all-important; let him have it understood in the home, or wherever he lives, that he is engaged in a serious piece of work and must not be interrupted.

ORDERLINESS: It has been discovered by those working regularly at desks that the mind is easily distracted from its work if they are compelled to search for pencils, correspondence, books, etc. Knowing where to find things will avoid confusion in every activity.

Mental Requirements.

ATTENTION: Before the student can learn anything, he must have learned *to pay attention;* that is, to concentrate his thoughts on whatever he is considering.

Lack of attention is the most common mental fault, and a high degree of the power of attention is the most precious mental possession. Indeed, it has been said that genius is nothing more than prolonged attention. When the student begins to read and study, he may discover that it is difficult to keep his mind on his work. If this be the case, the following paragraphs will serve to give him an understanding of how this difficulty may be overcome.

Attention is of two kinds—forced and unforced. Forced attention is voluntary attention. It is called voluntary because it involves a deliberate act of the will. The student cannot *force* himself to pay attention for any considerable time, and should not try to do it. If his mind must be compelled, the compulsion should be only for a brief period.

When mentally tired, the student should stop and look away from his reading, thus giving his mind a short rest; let him occasionally get up and walk about the room. No wise athlete, when training, will put a too-prolonged strain upon his muscles, because the body will soon become exhausted if compelled to do tasks beyond its strength. So, a too-prolonged mental exertion is exhausting to the mind. The student will find, as he advances in his studies, that his power of forcing the mind to attention increases as he becomes used to his work.

Unforced attention is involuntary atten-

tion. It is called involuntary because it requires no effort of the will.

An unwilling workman doing a distasteful piece of work is forcing himself to pay attention. He knows that he must do it or suffer the consequences. He pays attention by an act of the will. On the other hand, given work to do that he likes and with which he is familiar, he pays attention to what he is doing without effort. His attention is involuntary because it involves no compelling act of the will.

Attention Example.

Unforced or involuntary attention is the better, because it is the result of intense interest in the thing at hand, and because the student can keep it up for a long time without fatigue.

Forced attention changes to *unforced attention* as interest increases. A person may be at the park witnessing a "one-sided" baseball game, and during the first few innings find his attention wandering. He forces himself to pay attention. Soon the score begins to even up and his interest is awakened. Before the game is over, he has forgotten everything except the batting rally in the ninth inning by the home-town hero. He is paying unforced attention.

The student may have a similar experience as he proceeds with his studies. He may feel at first that it is too much for him, but as what he is reading begins to unfold before him and he begins to see the reasons for things and to understand the work under his hands, he will become more and more interested, until attention fixes itself without effort and his reading and studying become a pleasure instead of a task.

CONCENTRATION: To get up in the world the student must have some "get-up" in himself. To get up he must not give up. He must concentrate.

"To concentrate" means to focus the attention upon a single object or small group of objects. To concentrate the attention, to intensify it in strength, everything valueless or unneeded must be removed from the mind.

DETERMINATION: Nothing worth while has ever been accomplished without sufficient determination. If the student is approaching the study of this article, or what is perhaps of more importance, some book on telephony in half-hearted fashion, and if his indifference continues, he is doomed to disappointment.

Determination Aids Achievement.

If he does not feel that his reading is worth doing with every ounce of ability that he has, he is not likely to succeed. There must be determination. Other men have done the equivalent of what he may be undertaking, and have counted their achievement one of the most valuable of their lives. Completing a course of reading is worth doing. Therefore, let the student who has mapped out for himself such a course resolve with all the powers of his mind that he will do it; and that he will so do it as to get the most out of it.

FREEDOM FROM DISTRACTIONS: If, while in the act of studying there comes to the student a longing to do something else, his best work cannot be done, and progress will not be made until the longing is put out of thought. This is an additional reason for having regular reading hours.

Let the student get it clearly fixed in his mind that what he is reading is the most important thing for the time being. If his mind is jumping from what he is doing to what he might be doing, he will find it impossible to carry on. Such vagrant thoughts should be expelled.

Fear of failure is a bar to clear thinking. It is an enemy of success. To succeed in a course of study—in business, in almost anything—with a mind filled with fear or worry, is like trying to drive an automobile with the brake on. It gets along fairly well on the level, but let the driver try to make a hill, or the student try to master a difficult subject with the brake set, and failure and defeat are almost certain. Unless the brake is released entirely, the student will find climbing the hill of successful study a very arduous task.

ABILITY TO REMEMBER: The cultivation of the ability to remember is an important part of education. Memory is a most important faculty and is based on thought. It is not, however, a substitute for thought. Some persons are accustomed to say, "I just cannot remember," as if that were really true and final—but it isn't.

Development of Memory.

Everyone has some ability to remember, although it may be insufficiently developed. Even the poorest memory is capable of almost unlimited improvement. Similarly, a good memory, with proper training, may be made better than it is. If the student finds himself unable to remember what he has learned, he must strive to develop in himself the power to retain.

INTEREST: The first thing necessary to memory is interest. The student should cultivate an interest in what he is studying. Whether it is one of the books he has chosen, a magazine article, or what-not, he should believe, if only for the moment, that it is the most important thing in the world. If the student cannot persuade himself that his reading is valuable to him, or if he cannot make himself take an intensive interest in it, it is a waste of time to undertake such a study.

If he is not interested in a thing, it is not likely to fix itself in his mind. The student remembers best what interests him most. Jimmy, the office boy, who cannot remember what you sent him after, may have the names of all last fall's football players by heart. He does not know how he learned them and does not remember when he learned them; they fixed themselves in his mind because he was interested in them.

Let the student cultivate an interest in his work and talk with fellow students about his books and articles. Let him be enthusiastic about what he is reading. Enthusiasm is akin to interest. It will be increasingly easy to remember as interest and enthusiasm grow.

ANALYSIS: Analysis is essential in order to decide what to memorize. It is easy to see that confusion would reign supreme were everything remembered that had been read. It is those things which one has very definitely intended to remember that are the more easily recalled.

Things Easily Recalled to Mind.

This is a point that the student will do well to remember. He will always find it helpful to reduce what he has learned to the fewest possible words. With pencil in hand, let him go over what he has been reading and underline the important words. He cannot hope to remember everything he reads. It is necessary, though, that he remember the essential elements of what he reads.

It will help him to understand and remember what he is studying if he will make notes. Writing a thing tends to fix it in memory.

If it is a circuit diagram the student is studying, let him analyze the circuit, draw the fundamental features, and study them until he can reconstruct the action of the entire circuit. Drawing it in this way a few times will fix it in his mind more thoroughly than twice the time spent in merely studying it as a whole and hurriedly glancing it over. This will fail entirely to make a permanent impression.

ASSOCIATION: The ability to remember is often developed by associating one thing with another. If the student tries to recall fellow-workers of former days, he cannot remember all of them at once. His closest friend will come to his mind first. Thinking of him may suggest another; that one will suggest still another; and so on until the student's memory has covered the entire circle.

Memory by Association

This process of making one thing bring another to our minds is called *association*. It is helpful always to remember things in groups. Many things may be thought of in groups that will never be remembered in any other way.

Many systems have been invented to increase the ability to remember. Certain words have frequently been used. Many persons who remember the colors of the spectrum do so by the use of memory word, "VIBGYOR," which is made up of the initial letters of violet, indigo, blue, green, yellow, orange, red.

The student may be able to invent such words to help him remember certain difficult parts of his reading. It is better though, if possible, to remember things by logical association without artificial aids. The student's ability to remember will in-

crease more certainly if he does not depend too much on such helps.

RECALL: By "recall," as applied to the memory, is meant the student's ability to recall any desired portion of the things which he has memorized. There is a difference between remembering a thing and being able to recall that thing at will. A familiar face may be encountered and yet the name associated with the face may be apparently forgotten. If some time later that name is recalled, then it has not been forgotten; it simply could not be recalled when wanted.

The student can develop the ability to recall at will those things which have been memorized, if he will mentally underline the more important thoughts expressed in what is being read. Let him attempt to recall the more salient features while for the moment the book is put to one side. If this be continued until each of the important points is fixed in mind, the substance of the entire text may be said to have been mastered.

Every time a piece of knowledge is recalled, it becomes much easier to recall again. *What cannot be remembered, has never been learned.* The importance of constant review of the work that has been gone over cannot be exaggerated. It is always well to look over yesterday's work before beginning today's. During the day, thinking over the points of what has been read the day before is sure to help.

Whenever possible, what has been learned should be used. If the student has been studying about telephone maintenance, let him be alert to put into practice what he has read; if it has been a piece of apparatus he has been reading about, he should take occasion to examine such apparatus and to go over in his mind what he has learned concerning it.

REPETITION: Few of us realize the tremendous power of repetition. By attentive reiteration again and again, a word, a phrase, or a statement, will become so impressed on our minds that we will be unable to forget it.

The real success of publicity, commonly termed advertising, is based on repetition —constant repeating of something that clings to the memory so tenaciously that without mental effort it requires but the slightest jar of the brain cells to cause one automatically to recall the entire phrase or statement connected with it. The well-trained telephone employe, seeing the formula $I = E/R$ immediately calls Ohm's law to mind.

Repeat a keyword or phrase often enough, and it becomes as forceful and irresistible as a snowslide plunging down the mountain side.

MEDITATION: No one can skim through a book and expect to remember it. The mind does not usually take instantaneous pictures—snapshots—that will last. Let the student beware of snap judgment and that which produces it. He should always be deliberate in study; never in a hurry.

Knowledge rushed into the mind soon rushes out again—"ebb and flow." To say, "I will read this book in four hours" is a mistake. Say rather, "I will study this book until I understand it." Let the student read rapidly the first time if he must, but the second time read and meditate.

Conclusion.

In all reading the student may find subject matter that seems difficult to understand at first; but difficult reading is a test of a man's perseverance—of his will-power or initiative. Many readers go gliding along until they encounter something difficult and there they stop. Why give up? Try again and again until it is mastered. If at first it cannot be understood unaided, ask someone for help—a fellow worker, or supervisor. Write to the editor of your telephone magazine, he will be glad to assist.

The road is open to success. Every success makes future success easier; therefore, the student should exercise all the will-power he has and should be determined that he will succeed.

If difficult reading is a test, then easy reading is a temptation. The student may feel that he already knows everything contained in certain books or articles and that it is not necessary for a person of his attainments to do any such elementary work. "Old stuff," he may think. But does he really know it as well as he thinks he does? Let him not slight a thing because it seems easy to do. Give it care; this "old stuff" may still contain more that is new than he may think.

Every student should be thorough in what he does. When he finishes a book or article, whether it is easy or hard, he should be sure that it represents honest, thorough study.

These things are largely dependent upon the student's initiative, perseverance, determination. He should let nothing turn him from his purpose. In making a beginning, he has done a good thing. The successful life, however, is not determined by the things begun, but by the things successfully finished.

Initiative is good; if it is supported by perseverance, determination, "stick-to-itiveness," it is better, for it is then the kind of initiative that carries its possessor to successful conclusion.

Success is no respecter of persons. It is for me and for you. It is for any person who will read and *think*, and then *do*.

Ohio Central Telephone Corp., Wooster, Ohio, Not for Sale.

There has been persistent rumor for some time that the Ohio Central Telephone Corp., the main offices of which are at Wooster, Ohio, and which is operating the properties formerly known as the Millersburg, Wooster & Orrville, the Caledonia, the Morrow County, the Licking, the Mt. Sterling, and the Valley Telephone companies, would sell its properties or merge them with some other interests.

In regard to these rumors, the management announces that the stock of this company is not for sale and that no negotiations in connection with any merger are being considered at this time.

Since acquiring the properties named, there have been some very substantial improvements made in their physical condition. Plans for the future include many more substantial improvements.

The acquisition of The Wayne County Farmers property, of approximately 1,400 stations, in Wayne county, will make a considerable addition to this property and will be very beneficial to both the company and the community alike.

The management feels justified in prophesying a very substantial future.

Companies to Own Instruments; Bell Contract, 2 Per Cent.

The Southwestern Bell Telephone Co., St. Louis, Mo., has entered into a new contract with the American Telephone & Telegraph Co. whereby the Southwestern company will purchase the telephones it uses which were formerly rented from the parent company.

As a result of this agreement the Southwestern company, which formerly paid the parent concern 4 per cent of its gross earnings for rental and services, will now pay 2 per cent.

On the basis of the 1926 gross revenue, which was $60,730,144, the payments to the parent company will be decreased by about $1,200,000. This, it was explained by company officials, will not mean a saving for the Southwestern Bell, as the rental will be diverted to the purchase of instruments and their maintenance.

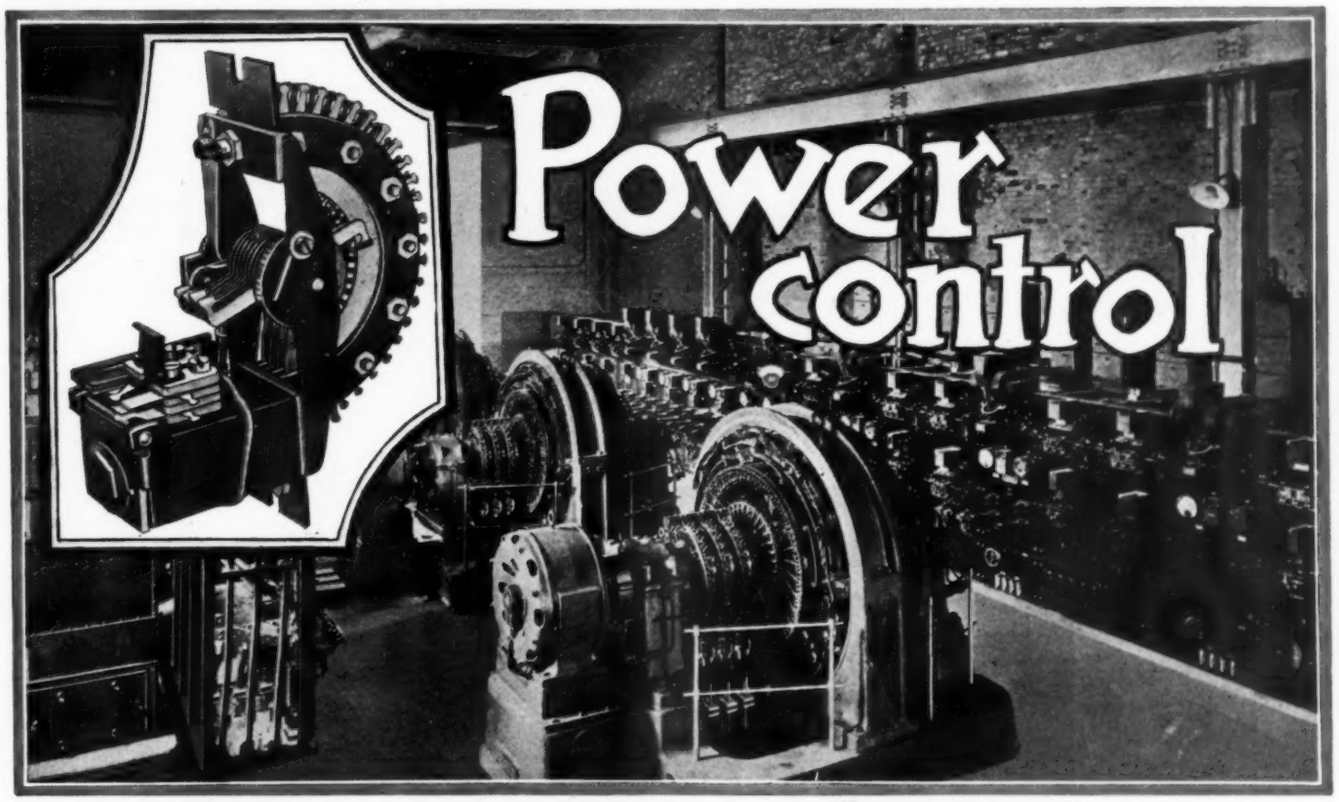
Press reports from San Francisco, Calif., and Detroit, Mich., indicate that the Pacific Telephone & Telegraph Co. and the Michigan Bell Telephone Co. also have new contracts similar to that of the Southwestern Bell Telephone Co.

Illinois Association Will Hold District Meeting at Pittsfield.

The first district meeting in 1928 of the Illinois Telephone Association will be held on January 18 at Pittsfield, sessions opening at 9:30 a. m.

The traffic conference will be conducted by Mrs. Dorothy H. Van Ert, general traffic supervisor, Illinois Telephone Association. The executives' conference will be presided over by Louis Pitcher, Dixon, vice-president of the association. A get-together community luncheon and sing will be held at noon. Mr. Pitcher will speak on "The Modern Home."

Every telephone company within reach of Pittsfield is urged to send its principal executives and as large a delegation as possible of its operators to Pittsfield.



IN the Supervisory Control of Automatic Power Substations "Strowger" Mechanism performs a vital service.

Responding to electrical impulses, transmitted over a telephone circuit from the distant Control Room, the Strowger Rotary Switch is utilized to operate the various circuit breakers and alarm devices.

It will be realized that reliability is the keynote of such an important service; hence the selection of "Strowger" for this duty.

Upwards of 3,500,000 Strowger Automatic Telephones installed or under construction throughout the world

Strowger(s)witchcraft

ATM

Automatic Telephone Manufacturing Company, Ltd.

Strowger Works, Milton Road, Liverpool, England

Associated Company—International Automatic Telephone Company, Ltd., London, England

Maintaining Strowger

Progressive

In the progressive shown here, girl operators because of the nimbler fingers and the greater expertness with wires the wiring operations partment is located on the building, with a row of windows affording ideal conditions and ventilation.

STROWGER

tomatic Supremacy---
of Switches

IN the factories of Automatic Electric Inc. the wiring of all switches, such as selectors, connectors, etc., as well as their assembly, is accomplished by a series of progressive operations. In switch wiring, each operator has one certain specified phase of the process assigned to her in which, from thorough training and constant repetition, she becomes remarkably skilled. By this specialization, both speed and accuracy are secured in the manufacturing operations. Constant supervision and exacting inspection insure the quality of workmanship.

Every phase in the manufacture of Strowger Automatic telephone equipment has been carefully studied over a period of years by the efficiency experts of Automatic Electric Inc., with a view to so systemizing factory production methods as to eliminate lost motion and unnecessary waste, and insure a uniformly high standard of quality. Proof of their success is in every piece of Strowger Automatic equipment which leaves the factory to establish new records of durability and dependability in the hands of the purchaser.

[*This is one of a series of advertisements illustrating the exacting care exercised in the production of Strowger Automatic telephone equipment, which is thus kept constantly in advance of the telephone art.*]

Automatic Electric Inc.

Factory and General Offices: 1033 West Van Buren Street
Chicago, U. S. A.

Sales and Service Offices in All Principal Cities

AUTOMATIC

A. B. C. of Depreciation Accounting

and that they follow more nearly the course of actual depreciation.

Creation of the Depreciation Reserve.

The accounting procedure necessary to record depreciation is comparatively simple. The first step in the procedure is the creation of the reserve through the means of a charge to operating expenses. The definitions of the accounts, Depreciation

Depreciation, Dr.....	——
Depreciation Reserve, Cr.	——

Fig. 1. Entry to Record the Estimated Depreciation of Plant for Period.

and Depreciation Reserve, which have already been given, have explained the substance of this transaction. It consists of a charge to the account, Depreciation, which is considered in the nature of a special operating-expense account, and of a corresponding credit to the account, Depreciation Reserve. This entry is shown in Fig. 1.

This entry results in a recognition of the liability of the utility to meet in the future a loss in the serviceable value of its property that has taken place during the period. The total amount in the reserve indicates the amount that has been withheld from earnings to meet depreciation.

The journal entries are posted to the proper accounts in the general ledger, and when a financial statement is taken from the books, the charge to the account, Depreciation, is included in the income account as one of the classes of operating expenses to be deducted from revenues before net earnings are determined, while the depreciation reserve appears in the balance sheet among the liabilities.

When depreciation is computed on the sinking-fund basis, the entry shown in Fig. 1 records only the charge to operating expenses. Hence a further entry is necessary to record the transfer to Depreciation Reserve of the amount of the interest that has accumulated during the period on the balances in the reserve. This entry is

Interest (Depreciation Reserve Requirement), Dr.	——
Depreciation Reserve, Cr.	——

Fig. 2. Entry to Record Charge Against Income on Account of Interest Accruals During Period on Depreciation Balances Borrowed from This Account Under Sinking-Fund Method.

quite simple, being merely a debit of interest and a credit of depreciation reserve. It is shown in Fig. 2.

The entries, Figs. 1 and 2, constitute the procedure necessary to create the depreciation reserve. The accompanying income account, Fig. 3, shows how the charges to depreciation and to interest, which create

(Continued from page 18)

the depreciation reserve, appear therein.

Since the purpose of the reserve is to assess, as a deferred charge to the operating expenses of each period, the costs of operation that result from the shrinkage in the value of the property that actually takes place during that period, the entries should be made regularly during each period.

OPERATING REVENUES.		
Commercial lighting revenues	$15,000.00	
Municipal lighting revenues	5,000.00	
Miscellaneous electric revenues	2,000.00	
		$22,000.00
OPERATING EXPENSES.		
Production	$ 5,000.00	
Distribution	2,000.00	
Utilization	1,000.00	
Commercial	1,500.00	
General	2,000.00	
Miscellaneous undistributed	500.00	
	$12,000.00	
Depreciation	4,000.00	
Taxes	1,000.00	
		$17,000.00
Net operating revenues		$ 5,000.00
Non-operating revenues		1,000.00
Gross income or deficit		$ 6,000.00
DEDUCTIONS FROM GROSS INCOME.		
Interest on fund debt	$ 2,000.00	
Interest on floating debt	1,500.00	
Interest (depreciation reserve requirement)	500.00	
		$ 4,000.00
Net income		$ 2,000.00

Fig. 3. Income Account Illustrating Charges to Depreciation and to Interest.

Use of the Depreciation Reserve.

The depreciation reserve account correctly appears on the right-hand side of the balance sheet among the liabilities. As has been explained, it is credited with the amount set aside for depreciation in the operating expenses, and, as well, under the sinking-fund method, with the interest upon the balances in the account from time to time.

If correctly kept, it measures the lessening in value of the plant and equipment due to depreciation and shows the amount reserved from earnings to cover retirements when they must be made. Since it is the recognized liability to meet retirements, it is used only in this connection.

When a unit of property, for the replacement of which the depreciation reserve has been created, is replaced, the loss in value that has taken place since it was installed is not a charge against operating expenses, because this loss as an operating expense already has been met. It was spread over the period of its service life when the depreciation reserve was created. Hence, when it is replaced, it is a charge against the depreciation reserve and not against operating expenses. Therein lies the significance of the depreciation reserve.

A transaction involving the replacement or renewal of a unit of property, logically consists of two parts; namely, (1) the removal of the old unit, and (2) the installation of the new unit. The proper accounting procedure with respect to such a transaction makes this same division. Hence it is quite essential, in accounting for retirements, to retain the conception that the old units must be removed before the new units can be installed, and that each should be recorded separately.

The first step in recording the retirement of any unit of plant investment is its elimination from the book value of the utility. This is accomplished by a credit to plant at its original cost. A depreciation reserve having been created to cover its retirement, this account is charged simultaneously. The entry for this purpose is shown in Fig. 4.

This entry is applied to retirements on account of abandonments as well as to replacements, for, as will be noted hereinafter, a retirement of property is really complete in itself from an accounting standpoint, although it may be a part of a replacement.

Depreciation Reserve, Dr.	——
Plant Investment, Cr.....	—

Fig. 4. Entry to Record the Retirement of Equipment at Original Cost.

The entry shown in Fig. 4 does not account for the cost incurred in removing the unit. These costs should also be met out of the depreciation reserve. Under the usual accounting routine they are credited to accounts payable, but sometimes they are

Depreciation Reserve, Dr.	——
Account Payable, Cr.....	——

Fig. 5. Entry to Record Cost of Removal of Property Retired.

credited directly to cash. Fig. 5 shows the substance of such an entry.

When a unit removed from service has any scrap value, an element in addition to those already illustrated is presented. The scrap value of a unit reduces by that amount the charge that must be made

Cash, Dr.....	——
Depreciation Reserve, Cr.	——

Fig. 6. Entry to Record Sale of Junk for Cash.

against depreciation reserve. In fact, as has been explained, this factor of remaining value is usually allowed for when the depreciation upon a unit is computed.

Since in the entry shown in Fig. 5 the total cost of the unit has been charged to depreciation reserve, the scrap value must be credited back to this account. Ordinarily if a unit is sold directly upon removal, it is charged to cash. However, if

Materials and Supplies, Dr.	——
Depreciation Reserve, Cr.	——

Fig. 7. Entry to Record Abandoned Property Placed in Stock.

it is held in stock until it is sold, it is charged to materials and supplies during the interim. Figs. 6 and 7 typify these transactions.

When new units of equipment are installed, their cost is debited to plant invest-

Plant Investment, Dr.....	——
Accounts Payable, Cr....	——

Fig. 8. Entry to Record Indebtedness Incurred for Plant Investment Installed.

ment while accounts payable, cash or materials and supplies are credited. Figs. 8, 9 and 10 show this entry.

These entries are the same whether the units are replacements or distinct new addi-

Plant Investment, Dr.....	——
Cash, Cr.....	——

Fig. 9. Entry to Record Cost of Plant Investment Installed.

tions, and regardless of whether the units, if they are replacements, cost more or less than the respective units that were retired.

This similarity of treatment is possible, because all installations which are removals are, in reality, additions in the light of the plant investment accounts after the property replaced has been withdrawn from

Plant Investment, Dr.....	——
Materials and Supplies, Cr.	——

Fig. 10. Entry to Record Plant Investment Installed Out of Stock.

plant investment in the manner described. In other words, one routine of accounting records the removal of plant investment, while the other records the installation of plant investment.

All of the foregoing entries have been journalized for purposes of illustration. In actual practice they take the usual course of the records of original entry, some of which will be described later. In this way, many retirements are oftentimes recorded in the same entry and thus much detail is eliminated in recording additions.

Depreciation Reserve and Depreciation Reserve Funds Distinguished.

Hitherto in this discussion the depreciation reserve has been referred to as a reservation of earnings and as a sum to be used to make necessary replacements. While the assignment of these attributes to the reserve account is technically correct, the true character of the account is oftentimes not fully understood if it is thus described.

The misunderstanding arises from the fact that it is frequently conceived to be an actual cash fund set aside out of which to pay for replacements, which is not the case. Such payment is accomplished not by the depreciation reserve, but by a *depreciation reserve fund,* which is created by entries entirely distinct from those which have been presented thus far. The distinction between the depreciation reserve and the depreciation reserve fund and the characteristics of the two accounts may be explained somewhat more clearly by a discussion of the illustrative balance sheets, Figs. 11, 12, 13 and 14.

Fig. 11 shows a balance sheet carrying a depreciation reserve of $4,000, having been created by a charge to operating expenses to cover the loss in service value that has taken place in plant assets. Had no charge to operating expenses been made, the reserve would not appear. In that event the balance sheet would appear as shown in Fig. 12.

It will be noticed that this balance sheet carries a surplus of $5,000, whereas that in Fig. 11 shows a surplus of $1,000. Surplus is available for distribution as profits. Hence, the failure to create a depreciation reserve in Fig. 12 makes it possible to declare a dividend of $5,000.

Fig. 13 shows that this has been done, $4,000 being thus disbursed, leaving the plant investment intact; in reality it is overvalued by $4,000. Were it found necessary in this situation to make a replacement, the company would not be in a position financially to meet the cost.

In Fig. 14 it will be noted that the balance sheet reveals the depreciation reserve shown in Fig. 11 and also a depreciation reserve fund. It is evident that this fund has been created by transferring to it $4,000 of the current assets that were shown in Fig. 11.

Plant investment.....	$10,000.00	Capital stock.....	$10,000.00
Current assets.....	5,000.00	Depreciation reserve.....	4,000.00
		Surplus	1,000.00
	$15,000.00		$15,000.00

Fig. 11. Balance Sheet Carrying a Depreciation Reserve.

The depreciation reserve fund is an asset account and always appears on the left-hand side of the balance sheet. It is charged with assets especially set aside to meet depreciation. Fig. 15 shows the journal entry for this purpose. It may represent cash deposited in a bank, securities held in the treasury, or other items of value that may immediately be liquidated when needed for replacements. The amount in the fund may be equal to or less than the amount in the depreciation reserve. When funds are withdrawn from the fund for renewal, the account is credited in lieu of cash or accounts payable as indicated in the entries previously shown.

Plant investment.....	$10,000.00	Capital stock.....	$10,000.00
Current assets.....	5,000.00	Surplus	5,000.00
	$15,000.00		$15,000.00

Fig. 12. Balance Sheet in Which No Charge Was Made to Operating Expenses for Depreciation.

The depreciation reserve, then, results in a preservation of assets with a view to their availability to meet depreciation, but it does not result in setting them apart for that specific purpose. When thus they may consist of plant assets, current assets, or of special funds. The depreciation reserve fund, on the other hand, represents available assets actually set aside for depreciation.

The creation of the depreciation reserve fund, therefore, is dependent upon imme-

Plant investment.....	$10,000.00	Capital stock.....	$10,000.00
Current assets.....	1,000.00	Surplus	1,000.00
	$11,000.00		$11,000.00

Fig. 13. Balance Sheet After Payment of Dividend.

diately available assets, while the depreciation reserve may be created without available profits or assets. The keeping of adequate depreciation reserves is required by most regulatory commissions, whereas the creation of depreciation reserve funds is usually optional.

Plant investment	$10,000.00	Capital stock	$10,000.00
Depreciation reserve fund	4,000.00	Depreciation reserve	4,000.00
Current assets	1,000.00	Surplus	1,000.00
	$15,000.00		$15,000.00

Fig. 14. Balance Sheet Showing Depreciation.

Terminology With Respect to Depreciation.

Throughout this discussion the terms "depreciation," "depreciation reserve," and "depreciation reserve fund" have been used to designate the accounts designed to record depreciation. These designations have been applied, not because they are accepted everywhere as proper titles for these accounts, but rather because there is no standardized designation and these have been more generally adopted.

Among the titles used to denote the charge to operating expenses to cover depreciation, in lieu of the term "depreciation," are the following: Maintenance and replacement, renewal and contingent expense, retirement expense, general amortization, depreciation of plant, and renewals and replacements.

Depreciation Reserve Fund, Dr.	——
Cash, Dr.	——

Fig. 15. Journal Entry to Record Creation of Fund to Secure Depreciation Reserve.

The account that has been referred to as depreciation reserve is variously designated as maintenance and replacement reserve, renewal and contingency reserve, retirement reserve, accrued amortization of capital, reserve for accrued depreciation, and reserve for renewals and replacements.

Usually the designation accorded the reserve covering depreciation is applied, also, to the "fund" in the same jurisdictions. In this connection it is pertinent to call attention to the fact that the failure to designate "funds" and "reserves" respectively, by those titles has caused some confusion in the treatment of depreciation.

The need for uniformity of terminology with respect to depreciation as well as of its treatment, is being recognized. Recent revisions in accounting classifications show a marked attempt to eliminate obscurity in connection with the subject.

Summary.

Depreciation is one of the most important subjects of public-utility accounting. Its far-reaching effects upon the finances of the public utility cannot be overemphasized. Without proper allowances to cover the impairment of capital, which is known as depreciation, the costs of operation cannot accurately be ascertained.

The correct treatment of depreciation presents a three-fold problem:

(1) To fix depreciation allowances that will be sufficient at all times to enable the utility to make replacements of property as required.

(2) To apportion these allowances equitably over a period of years.

(3) To record the allowances made for depreciation and the uses made thereof upon the books of account upon an intelligible basis.

Instructive Program for Nebraska Association Convention.

More than 250 telephone men and women are expected to attend the 29th annual convention of the Nebraska Telephone Association, to be held at Kearney on January 17, 18 and 19. Sessions will be at the Fort Kearney Hotel, a recent addition to the hotel facilities of that city, which is the home of President Warren Pratt.

The convention meets there for the first time, and its central location is expected to draw a large attendance from western and southwestern Nebraska. Secretary Kloidy has devised a slogan of "two or three from each exchange," and urges bringing the women along. The program, which is especially builded for the benefit of the smaller companies, is as follows:

TUESDAY AFTERNOON, JANUARY 17—GENERAL OPENING SESSION, 1:30.

Warren Pratt, president, presiding.

"Welcome to Kearney," by Mayor L. D. Martin, of Kearney.

Response to address of welcome, by C. L. Kelly, general manager, Farmers Telephone Co. of Dodge county, North Bend.

Annual report of treasurer, by W. E. Bell, Lincoln.

Annual report of secretary, by Geo. M. Kloidy, Lincoln.

"Use of Highways by Wire Using Companies," by A. L. Turner, foreign wire relations engineer, Northwestern Bell Telephone Co., Omaha.

"Regulation of Public Utilities," by S. L. Harris, Kansas City, Mo.

"Seeing Yourself as Others See You," by H. T. Dobbins, associate editor, Nebraska State Journal, Lincoln.

Appointment of convention committees.

TUESDAY, JANUARY 17, 8:00 P. M.

Theater party for the ladies.

Smoker for the men.

WEDNESDAY, JANUARY 18, 9:30 A. M.

President's address, by Warren Pratt, president, Kearney Telephone Co., Kearney.

"Solving the Small Exchange Problem," by H. M. Carmean, secretary, Platte Valley Telephone Corp., Scottsbluff.

Report of Joint Committee on Physical Relations Between Electrical Supply and Signal Lines, by M. T. Caster, association's representative on committee.

"The Necessity of Adequate Rates," by R. F. Wilder, general commercial manager, Tri-State Telephone & Telegraph Co., St. Paul, Minn.

General discussion.

WEDNESDAY, JANUARY 18, 2:00 P. M.

"Commercial Activities," by H. F. McCulla, commercial engineer, Lincoln Telephone & Telegraph Co., Lincoln.

"Keeping the Public Informed," by D. E. McGregor, manager, Farmers Home Telephone Co., Gibbon.

"Some Problems In Traffic Work," by W. F. Cozad, general superintendent of traffic, Northwestern Bell Telephone Co., Omaha.

Report of nominating committee and election of officers.

General discussion.

Motion pictures.

Annual banquet—entertainment deluxe, 6:30 p. m.

Dancing, 8:30 p. m.

THURSDAY, JANUARY, 19, 7:30 A. M.

"Independent Telephone Companies," by H. H. Wheeler, Jr., chief engineer, Lincoln Telephone & Telegraph Co., Lincoln.

Illustrated address, "Review from Companies' Reports," by I. J. Devoe, chief accountant, Nebraska State Railway Commission, Lincoln.

"The National Association," by Chas. C. Deering, secretary, United States Independent Telephone Association, Des Moines, Iowa.

Motion pictures.

Report of auditing committee.

Report of committee on resolutions.

Unfinished business.

Final adjournment.

Meeting of board of directors.

The proceedings will be interesting and instructive, as may be seen from the program. Every hour during the entire convention will be one of constructive activity, with an abundance of work, some play, sufficient rest and a little sleep when there is nothing else to do.

England and Spain Soon to Have Telephone Communication.

The National Telephone Co., which holds the monopoly of the telephone service in Spain, announces that communication between Madrid and London will be opened shortly on a circuit through Paris.

The London Times expects that next June a direct service between Madrid and London without the intervention of Paris will be available, and that it will be possible to establish communication by wireless telephony between Spain and the United States, Canada and Cuba through this direct line to London.

Personal Notes From the Field

R. J. Counts is the new manager of the Lincoln Telephone & Telegraph Co. at its exchange at Exeter, Neb., succeeding Rex Alley, resigned. Mr. Counts went to the Lincoln company from the United Telephone Co., having been its manager at Atwood, Kans., for five years. He is a thoroughly-trained and experienced executive.

William D. Hobbins is now general manager of the Wisconsin Telephone Co., having been chief engineer of the company since 1920.

Mr. Hobbins entered the telephone business in 1890 at his home in De Pere, Wis., being employed as repairman. From 1896 to 1898 he served as lineman, 1898 to 1900 as an assistant construction foreman and 1900 to 1908 as construction foreman.

During his service in the construction department, he had occasion to work in most of the larger exchanges in the state and on all principal toll lines. In 1908 he entered the engineering department at Milwaukee as outside plant engineer and in 1911 was advanced to facilities engineer. In 1912 he was appointed state engineer.

Mr. Hobbins' 38 years of active service in the engineering, construction, operation and administrative departments of the business give him an exceptionally broad background of experience for efficiently carrying out his new responsibilities.

William D. Hobbins, Vice-President and General Manager, Wisconsin Telephone Co., Has Been Connected with Company Since 1890.

To fill the vacancy on the board of directors caused by the death of the late Henry O. Seymour, Mr. Hobbins was elected a member of the board. He was also elected a vice-president of the corporation.

George F. Crowell has been named chief engineer of the Wisconsin Telephone Co., succeeding William D. Hobbins, promoted to vice-president and chief engineer. Mr. Crowell has been employed by the Wisconsin Telephone Co. for more than 20 years. He entered the telephone business at his home in Yarmouth, Nova Scotia, in 1905, being employed as night operator, collector and repairman.

In 1906 he went to the Wisconsin Telephone Co., serving as an installer at Milwaukee and during the next six years he served as frameman, testman, switchboard repairman and cable tester. In 1912 he was assigned to the engineering department as equipment engineer.

In 1917, when the transmission division was organized, Mr. Crowell was appointed transmission and protection engineer. In 1920 he was made transmission, protection and fundamental plan engineer. He continued in that capacity until appointed chief engineer.

C. W. Motter, publicity director, Lincoln Telephone & Telegraph Co., Lincoln, Neb., was highly complimented in the Christmas issue of The Beacon Light, which is published by the Beacon Press, of Lincoln, to stimulate interest in better direct-by-mail advertising—in connection with a review of the Lincoln Telephone News.

A number of the covers of the News was reproduced, as well as a photograph of Mr. Motter. In commenting on the News, The Beacon Light says:

"This splendid publication, typical of all that is best in house magazine construction, fills an increasingly large place in the activities of the Lincoln telephone company's organization.

Revived in 1926, to take up the work laid down by a smaller publication that had been suspended during the deflation period, it speedily won for itself a prominent place among the better telephone magazines of the United States. With his first issue, Mr. Motter set an exceedingly high standard for the Telephone News, and from that standard he has never departed.

He has, in addition, handled the publicity requirements and public relations contacts of the telephone company with so much efficiency and tact that there is being generated a further feeling of friendliness throughout the territory of this excellent public utility.

Primarily, of course, the Telephone News speaks to the employes of the company. In acquainting the more than 1,100 workers in the ranks with the aims, hopes and fulfilled desires of the various members of the telephone family, Mr. Motter and his capable assistant editor, Miss Leona Ahlman, have made giant strides in the direction of creating good will for the company within its own ranks.

But it is when the Telephone News goes to readers outside the organization that it performs yeoman service in the matter of better public relations. Breathing the spirit of helpful service in all its pages, it acquaints users of telephone service with some of the physical and mental obstacles that a public utility must overcome—and details the manner in which they have been conquered.

George F. Crowell, Recently Appointed Chief Engineer, Wisconsin Telephone Co., Has Been with Company Over 20 Years.

And it presents still another picture to the outside reader—a picture of a living, breathing family of workers, each with his or her little world of ambitions, joys, despairs. A picture, further, with a background of sturdy Nebraska men and women shareholders, investing the hard won accumulations of years with a corporation they trust.

We believe that we violate no proprieties in advancing the theory that a series of such pictures eventually bring the outside reader to the point of visualizing the telephone company as something entirely different from the cold, heartless corporation that his mind has pictured.

Who, then, can say that such a house magazine is of no value to its sponsor?

Mr. Motter, as an exceedingly active member of various local organizations, gives freely of his time and energy to the furtherance of all worthy civic projects. Lincoln gained heavily in his coming."

Program Service and the Telephone

Carrier Current Method of Transmission of Program Service Described—Some of the Advantages Over Audio Frequency Set Up—Remunerative Side of This Service—General Layout of System—Complete System Not Patented

By Robert A. Fox

For some time there has been a rather feeble interest among Independent telephone companies relative to the possibilities of selling entertainment service over the telephone circuits.

Most of those now involved in this enterprise have confined themselves to the transmission of music at audio frequencies. This method of transmission is beyond the capabilities of cable pairs and ordinary telephone circuits. The flat transmission characteristic of the telephone circuit is between 100 and 4,000 cycles; a circuit is exceptional that will handle a frequency of 4,000 cycles. Such a circuit will not transmit satisfactory loudspeaker service.

Carrier Current Method.

The real method for the transmission of this service is the carrier current. This method provides distinct advantages over the audio frequency set up. It provides excellent tone quality transmission and permits the handling of more than one entertainment over the system; it also permits individual volume control at the subscriber's speaker, and has the economic advantage that no extra wire will be needed between office, or distributing point, and the subscriber's instrument.

There are electrical difficulties also, but they are not so difficult of solution as those encountered in the transmission of audio frequency. The per station investment will be higher than audio transmission but still will be much lower than the per station investment of an up-to-date telephone exchange.

The system consists of the following general layout: First, we must produce the carrier. The carrier must be strong enough that it will not be entirely shorted to ground, due to wire-to-ground capacity. It must be low enough to prevent dielectric breakdown of the other equipment used in the telephone exchange.

Must First Select Frequency.

To produce a carrier of the proper characteristics, we must first select our frequency upon which we wish to operate. For the first carrier, let me suggest 45,000 cycles; for the second, 100,000 cycles; and third, 175,000 cycles. These frequencies are all so related that none of the second harmonics will lie in the audio frequency band. These carriers require three separate master oscillators, each of which must have an amplifier to separate it from the cable capacity. Unless this arrangement is used, the frequency will be changed by the capacity of the cable.

To produce a crosstalk effect from all these carriers into the entire telephone plant, we must couple the oscillator to the pairs through a very low capacity condenser. The easiest method is to use one cable pair for each 600-pair cable, the end to be left clear.

This pair in each cable must be connected to a tapped connection on the plate coil of the oscillator amplifier. This gives us a connection similar to that used in the transmission line to feed the common Hertz radiator; also a modification of this plan is provided in the Marconi beam system of transmission. The strength of the carrier may be adjusted by changing the connection on the plate coil of the carrier amplifier.

There is nothing extraordinary in this layout. We have produced a coupling system from the amplifier to the transmitting pair. The same pair may be connected to all amplifiers by using small capacity condensers in series with the plate coil connection. There will be sufficient capacity from this pair to all others for the service we require.

Modulating the Carrier.

So far we have only carrier. To modulate the carrier it will be necessary to provide a modulator tube equal to approximately four times the power-handling capacity of the carrier-amplifier tube. We can then modulate sufficiently to reproduce faithful transmission at all frequencies from 50 to 5,000 cycles or even better, depending on the quality of the receiver amplifier. The method, of course, will be the familiar Heising choke system.

After producing the carrier and modulating it, we have a condition of crosstalk on all pairs terminating in the telephone exchange. At the subscriber's end we must provide a system of demodulation. It must consist of three loosely-coupled coils, which must be constructed so that the inductance will be in resonance with one of each of the three programs now existing on the entire exchange.

The secondary will lie in the grid circuit of a specially-constructed detector capable of handling a greater power load than the detector in an ordinary radio receiver. From here, one stage of audio amplification will provide sufficient volume for the residence, with a large amplifier provided for public places.

In the subscriber's instrument must be provided a system of keys to connect the detector secondary to the proper primary coil for the program desired. Loose coupling must be provided at this point to prevent the transmission of any audio frequencies. There will be no transmission of ringing current or telephone conversations if this coupling is loose.

Those who are bold enough to experiment with this system may find that when the telephone receiver is taken from the hook, the carbon grain transmitter may act as a crystal or carborundum detector and reproduce the music of the carrier in a jumbled mess. If so, the remedy is a radio frequency filter in series with all telephones in the exchange system.

As to the remunerative side of this coming service, let us suppose we charge a rate of $3 per month for this service which represents the average rental of residence telephones. Our per station investment will be about two-thirds that of the telephone station. Eighty per cent of the revenue from the telephone plant is consumed in operating and maintenance expense; in a carrier current system as described, this will not exceed 25 per cent. Why can't it become a big source of revenue to the company?

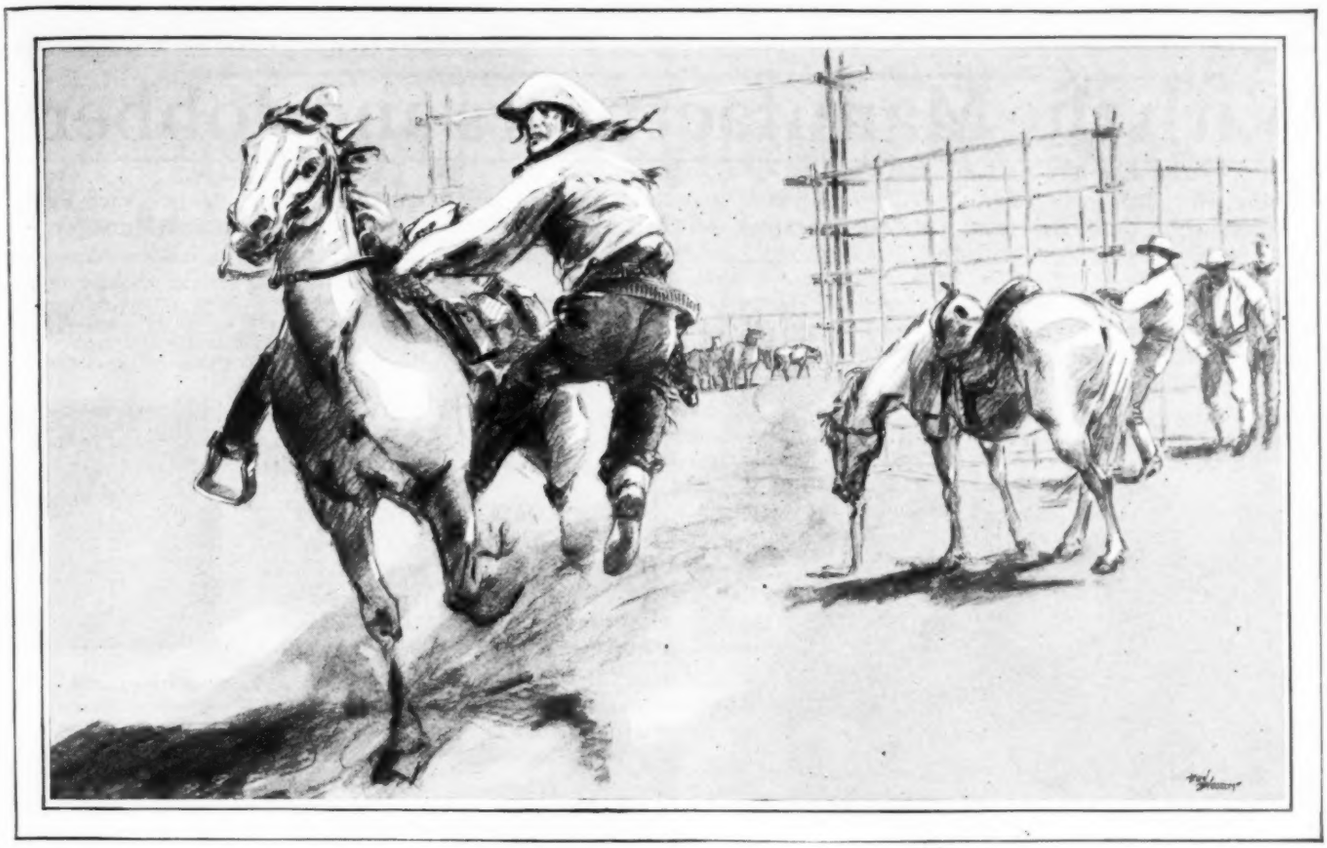
There is always the bugbear of the patent situation. There are several patents involved. The patents of Maj. Gen. Geo. O. Squier cover the idea of cross-talking the telephone exchange system for this purpose of entertainment service. His patents do not cover any equipment involved. The complete system is not patented by anyone, to my knowledge.

The patent on using the vacuum tube as a high-frequency generator is held by the A. T. & T. Co. as well as the patent on the Heising system of modulation. In my experience of operating and managing a radio broadcasting station, I have always found the A. T. & T. Co. reasonable to deal with. What its attitude will be in this case is to be guessed at.

Some one will put this thing over yet, and it will be real business in the near future. Let me suggest to those still struggling with the transmissions of audio frequency to forget them and switch over to a carrier current system.

Convention to Be Held at Devil's Lake, N. D.

The North Dakota Telephone Association will hold its annual convention at the Great Northern Hotel, Devil's Lake, March 6, 7 and 8, Secretary F. R. Irons has announced.



"Get the message through"

An Advertisement of the
American Telephone and Telegraph Company

IN THE Sixties the "pony express" carried the mail over mountains and Indian wildernesses from St. Joseph, Missouri, to San Francisco. The express riders and station keepers won undying fame for getting the message through, regardless of hardship or danger.

Today, in the city of Denver there is rising on the site of one of the old pony express corrals another splendid structure dedicated to the service of modern message-bearing—the new headquarters building of one of the companies of the Bell System. In fact and in spirit, the Bell System is the lineal descendant of the pony express.

It is this spirit of responsibility that causes operators to risk their lives by remaining at their switchboards in the face of fire, flood or other great danger. The same spirit calls linemen or repairmen to go out, even at the risk of their lives, to repair the lines in time of accident or storm.

There are no instructions requiring Bell System employees to endanger their lives. It is the spirit of communication that bids them, "Get the message through."

With the Manufacturers and Jobbers

Simplex No. 325 Pole Jack Conserver of Man-Power.

In telephone construction and maintenance work, managers are always interested in tools and devices that will conserve man-power. A tool of this type is the Simplex pole jack. For pulling, moving or straightening of poles, the No. 325 Simplex pole jack is said to be a necessity that defrays its cost. This is a light, durable and inexpensive jack, designed for pulling 25-foot and 30-foot poles, straightening poles of any size, and for tightening guy lines.

Slack in Guy Wire Is Easily and Quickly Taken Up with the No. 325 Simplex Pole Jack.

The No. 325 Simplex pole jack is furnished complete with a four-foot steel pinch bar lever, a 52-inch steel chain for pulling, a portable base support of eight-inch by 15-inch steel channel. An 8-foot pipe equipped with a malleable iron forked cap for biting into the pole is also supplied for use when the jack is utilized in straightening poles. This pipe is especially desirable when it is necessary to straighten crooked poles located alongside of ditches.

The total weight of the jack and equipment is 100 pounds. The mechanism is simple and substantial, for it is designed for permanent service. The rack bar is of chrome nickel steel, the pawls are of drop-forged steel, and the housing and lever socket are of steel.

One man with this Simplex pole jack, it is stated, can easily and efficiently handle any pulling or straightening of light poles. As extra help is unnecessary, it is stated that this saving in labor pays for the jack, and after that it will pay for itself again and again for many years.

The No. 325 Simplex five-ton pole jack is manufactured by Templeton, Kenly & Co., Ltd., Chicago, which will be glad to supply further information to interested persons.

Pulling Poles Is One-Man Job with the Simplex Jack.

The Bernz Torches and Furnaces.

The Otto Bernz Co., Inc., Newark, N. J., manufacturers of furnaces, torches and plumbers' tools, has announced its revised line of torches and furnaces. The list includes 14 torches which the company will manufacture and catalog.

The No. 6-C torch is the same as the No. 6 flat torch, except that it is for gasoline use only. The No. 6 torch is for gasoline-kerosene.

The No. 30 is a self-blowing alcohol torch, and takes the place of the No. 13 torch, which has been discontinued.

The torches the company will manufacture, but not catalog, are No. 7, No. 7-A, quart motor spray cleaner and pint motor spray cleaner.

The torches which will no longer be manufactured are Nos. 12, 57, 58, 65, 66, 85 and 86.

In place of the No. 57 and 58 torches, the Nos. 83 and 84 are offered. The No. 87 and 88 are offered in place of the No. 85 and 86.

The No. 65 and No. 66 torches have been discontinued on account of the limited demand. In their place the company offers either the No. 83 and No. 84, which are slightly lower in price, or the No. 79 and No. 80, which are slightly higher in price.

The furnaces which the company will manufacture and catalog are Nos. 19, 20, 21, 22, 23, 24, 30, 31, 32, 60 and 70.

The company will manufacture special style furnaces or special style torches whenever they are required.

Curtin-Howe's New Vice-President and General Manager.

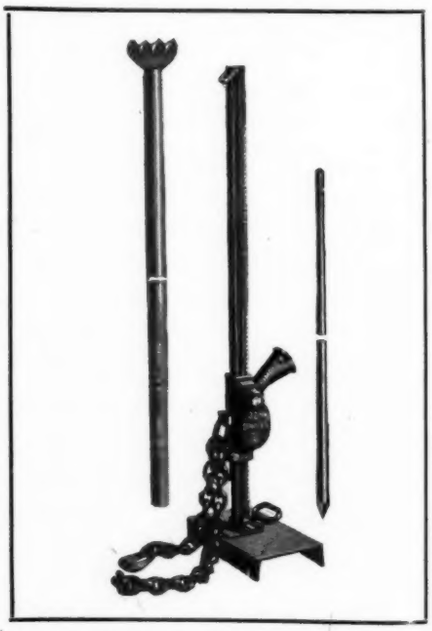
C. Marshall Taylor has been appointed vice-president and general manager of the Curtin-Howe Corp., 11 Park place, New York, who hold the commercial rights to the new wood preservative developed by the engineering laboratories of the Western Union Telegraph Co.

Vice-President and General Manager C. Marshall Taylor of Curtin-Howe Corp., New York.

Mr. Taylor has been actively engaged in wood preservation since 1906, when he became associated with the International Creosoting & Construction Co. of Galveston, Texas, in charge of its department of chemistry and tests. He served one year as assistant professor of chemistry at Swarthmore College and then built and operated for 15 years the Port Reading creosoting plant for the Reading Co. and the Central Railroad of New Jersey.

During that period, he was a member and subsequently chairman of American Railway Engineering Association's committee on wood preservation. He served one term as president of the American Wood Preservers' Association and is an affiliate of the American Society of Civil Engineers.

On two recent trips to Europe, Mr. Taylor has made very thorough investiga-



No. 325 Simplex Pole Jack Complete with Equipment.

"COPPERWELD" TELEPHONE LINE WIRE

for Reliability, Strength, Light Weight, Low Resistance and Non-Rusting Qualities

The three most important requirements for overhead telephone wires are: High Strength and Safety, Low Cost and Clearness of Speech.

A broken wire means interruption to service with the consequent cost of repairs. Wires are broken by two causes—over loading and rusting. Uninterrupted service can only be obtained by a strong, non-rusting wire.

Copperweld is Strong and Safe—Because Copperweld does not rust.

Copperweld is 50% stronger than the same diameter hard drawn copper or BB galvanized wire. It is 72% safer.

The final and true cost of an overhead line wire is properly determined by its initial cost per mile plus its total maintenance cost divided by the years of efficient service it gives. A low purchase price does not necessarily mean low cost. The wire which neither rusts or breaks, needing practically no maintenance, is lowest in cost.

Copperweld is low in Cost—because Copperweld does not Rust.

A rusting wire loses its conductance for speech currents. A non-rusting wire preserves clearness of speech.

Copperweld has and maintains excellent speech transmission characteristics—because Copperweld has excellent conductivity and cannot Rust.

The quality of speech transmission over Copperweld wire is practically the same as that received over a solid copper wire and is better than that obtained over galvanized wire because of the smaller attenuations of the voice currents. In so far as permanence of original speech transmission efficiency is concerned, Copperweld and copper were are considered Identical.

Copperweld Telephone Line Wire is Manufactured, Inspected, Sold and Guaranteed under Rigid Standard Specifications. Be safe—specify Copperweld for your overhead line work.

There is no other "copper-covered steel" or "copper-clad steel" made like "COPPERWELD"—by the Molten Welding Process

Copperweld Steel Company

MAIN OFFICE & MILLS:- GLASSPORT, PENNA.
30 CHURCH ST., NEW YORK. 129 S. JEFFERSON ST., CHICAGO.
RIALTO BLDG., SAN FRANCISCO.

American Electric Company, Inc.

State and 64th Streets
Chicago, U. S. A.
Distributor to the Independent Telephone Trade

Wind Shield Insures Efficient Operation in all Kinds of Weather.
Patented Large Non-Heating Valve Wheel
Removable Burner Block. Orifice cannot be enlarged
Patented Furnace Type Burner, Greater Heat and Continuous Operation
Easily Removable Needle Cleans Burner Orifice Every Time Valve Is Opened or Closed
Clevis
Large Pressed Steel Drip Cup Brazed to Supply Pipe
Angle Handle Restful and Easy to Hold
Filler Plug on Top Easily Filled. No Chance for Dirt to Enter
Handle Support Does Not Extend Through Tank
Pump Has Double Check Valve, Second Held in Place by Clevis
Flared Base for Greater Stability
Steel Tank with Bottom and Three Connections Only Brazed. Every Tank Tested to 100 lbs. Pressure
Three Thicknesses of Steel Where Greatest Wear Takes Place

LOOK INTO THIS NEW WALL

DREADNAUGHT

This new steel torch combines all the advantages of the time-tried older Dreadnaughts with a number of improvements. Built for heavier work, to give a bigger, hotter flame. New burner cleans itself automatically. All joints brazed with hard brass spelter solder; every torch tested. Can be used in all kinds of weather. A better "service with safety" torch that has been adopted by many of the largest public utility companies. Let us tell you more about the new Dreadnaught No. 41.

P. WALL MFG. SUPPLY CO.

3126-66 Preble Ave., N. S. Pittsburgh, Pa., U. S. A.

Since 1864

THE "STEWART" DETECTO-METER

A portable instrument of a thousand uses, a direct reading resistance meter, a battery tester, or a 150-volt voltmeter.

The most practical instrument made for locating bad joints. Will test the joints in a span without cutting down the line.

Can be used for checking receivers, generators, coils, transmitters, cords or, in fact, any part of the telephone or switchboard.

Write for Circular, Sent on Trial

STEWART BROTHERS

Makers of Testing Instruments

OTTAWA ILLINOIS

Also Test Sets, Test Cabinets and Cable Testers

A Changed Man

Not long ago he was PETER SOUR, with lines down and destroyed.

But now, since using EVER-PROTECT CABLE COMPOUND his lines are insured with a protective coating that's guaranteed to stay. Order from your jobber or direct.

National Cable Compound Co.

Incorporated
MITCHELL, INDIANA

tions into the timber preserving methods and preservatives, as practiced there.

The engineering laboratories of the Western Union Telegraph Co. have developed zinc meta-arsenite as the company's standard preservative. It is permanently fixed in the wood, using the standard processes now utilized in the wood preserving industry. The wood retains its natural color and can be used for all types of construction, both interior and exterior, and can readily be painted.

The Western Union developed this preservative in order that it could use pressure-treated poles that were both clean and permanently preserved in any locality.

The "Telefo-Safety"—A New Desk Stand Holder.

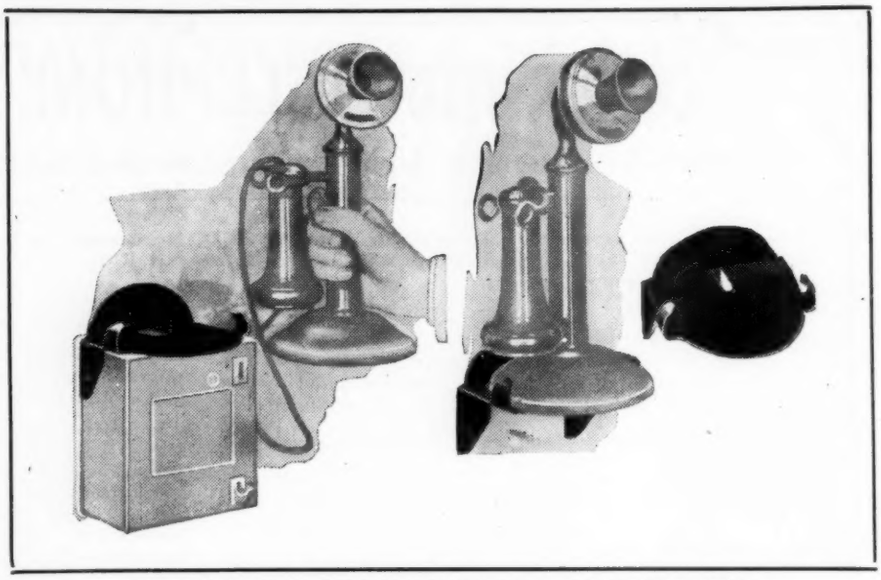
How often in the hurry and bustle of modern office work is the telephone bumped or pushed off the desk?

With the "Telefo-Safety," a new telephone holder just placed on the market, the telephone may be placed on the side of the desk or on a nearby wall, and it stays put. The base of the instrument slips easily in and out of two holding-prongs of the "Telefo-Safety" with no resistance whatever. The prongs are so adjusted that the telephone can only be slipped out; it will not fall out or jiggle out of the holding jaws.

The holder may be used for other purposes, for thousands are in use, with electric fans on them, in banks, offices, homes, restaurants, hotels, etc.—and some carry flower pots, too.

The inventor, C. W. Smith, has designed another form of the "Telefo-Safety" for use with flat-topped desks. With this design the telephone remains on the desk. It is said to be particularly useful in connection with the dialing numbers on the automatic telephones. A line of "Telefo-Safety" is also made for use in homes, obviating the need for a table or unsightly shelf. These are finished in attractive colors.

The National Phone Holder Corp., with offices at 219 South Dearborn street, Chicago, is the manufacturer of this device.



The Telefo-Safety Applied to Coin Box, and Attached to Wall.

Summary of October Reports of Class A Companies.

Reports of 80 Class A telephone companies, as made to the Interstate Commerce Commission for October, 1927, show gross operating revenues of $81,531,561, as compared with $76,104,786 for the corresponding month in 1926, an increase of 7.1 per cent. The operating income during the month of October, 1926, was $19,235,510, while that of 1927 was $20,439,400, showing an increase of 6.3 per cent.

Since January 1, 1927, the companies report gross revenues of $784,630,680, compared with $727,603,714 for the 10 months of 1926, which show an increase of 7.8 per cent; operating income for 1926 was $174,168,687, compared with $193,215,902, an increase of 10.9 per cent.

There were 14,589,504 company stations in service at the end of October, 1927, which is an increase of 5.6 per cent over that of 1926, when there were 13,813,595 telephones in service.

Complete data for the following companies of this class were not available for inclusion in this report: Consolidated Telephone Co. of Wisconsin, Illinois Northern Telephone Co., Iowa State Telephone Co., Northern Ohio Telephone Co., Ohio Central Telephone Corp., Standard Telephone Co., State Telephone Co. of Texas and the United Telephone Co.

Items.	Month of October		Increase or decrease (*).		For ten months ended with October		Increase or decrease (*).	
	1927.	1926.	Amount.	Ratio. Pct.	1927.	1926.	Amount.	Ratio. Pct.
Number of company stations in service at end of month	14,589,504	13,813,595	775,909	5.6	.....	.....	.....	....
Revenues:								
Subscribers' station revenues	$50,356,100	$47,650,567	$2,705,533	5.7	$490,170,223	$458,210,207	$31,960,016	7.0
Public pay station revenues	3,496,462	3,339,999	156,463	4.7	33,838,066	31,831,094	2,006,972	6.3
Miscellaneous exchange service revenues	605,526	557,006	48,520	8.7	5,979,412	5,502,843	476,569	8.7
Message tolls	22,332,908	20,527,111	1,805,797	8.8	211,137,389	194,143,607	16,993,782	8.9
Miscellaneous toll line revenues	2,841,891	2,374,607	467,284	19.7	25,199,468	21,623,564	3,575,904	16.5
Sundry miscellaneous revenues	1,854,196	1,612,896	241,300	15.0	17,860,975	15,879,590	1,981,385	12.5
Licensee revenue—Cr.	2,751,356	2,557,674	193,682	7.6	27,089,650	24,857,521	2,232,129	9.0
Licensee revenue—Dr.	2,706,878	2,515,074	191,804	7.1	26,644,503	24,444,712	2,199,791	9.0
Telephone operating revenues	$81,531,561	$76,104,786	$5,426,775	7.1	$784,630,680	$727,603,714	$57,026,966	7.8
Expenses:								
Depreciation of plant and equipment	$12,813,554	$11,742,379	$1,071,175	9.1	$124,225,975	$112,910,831	$11,315,144	10.0
All other maintenance	12,512,190	11,608,700	903,490	7.8	120,011,313	110,423,511	9,587,802	8.7
Traffic expenses	17,804,682	17,590,938	213,744	1.2	175,416,259	172,762,952	2,653,307	1.5
Commercial expenses	7,185,324	6,491,179	694,145	10.7	68,451,129	62,237,522	6,213,607	10.0
General and miscellaneous expenses	3,309,082	2,871,415	437,667,	15.2	32,323,880	29,311,733	3,012,147	10.3
Telephone operating expenses	$53,624,832	$50,304,611	$3,320,221	6.6	$520,428,556	$487,646,549	$32,782,007	6.7
Net telephone operating revenues	$27,906,729	$25,800,175	$2,106,554	8.2	$264,202,124	$239,957,165	$24,244,959	10.1
Other operating revenues	$ 477	.....	$ 477	....	$ 4,354	$ 63	$ 4,291	....
Other operating expenses	1,463	$ 421	1,047	....	11,630	4,519	7,111	....
Uncollectible operating revenues	502,943	449,729	53,214	11.8	4,852,076	4,502,299	349,777	7.8
Operating income before deducting taxes	$27,402,795	$25,350,025	$2,052,770	8.1	$259,342,772	$235,450,410	$23,892,362	10.1
Taxes assignable to operations	6,963,395	6,114,515	848,880	13.9	66,126,870	61,281,723	4,845,147	7.9
Operating income	$20,439,400	$19,235,510	$1,203,890	6.3	$193,215,902	$174,168,687	$19,047,215	10.9
Ratio of expenses to revenues, per cent	65.77	66.10	*.33	....	66.33	67.02	*.69	....

Statistics of Class A Telephone Companies Compiled by Interstate Commerce Commission from October Reports.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

New Radio Regulation Bill Introduced in Congress.

A sharp attack upon the Federal Radio Commission because of alleged failure to devote more time to a study of the use of short waves for commercial purposes was made in Washington, D. C., on January 7 by Representative White of Maine, who offered a bill amplifying the scope of the radio act of 1927 and extending the life of the commission until March 15, 1929.

Mr. White, who is chairman of the merchant marine committee, which has jurisdiction over radio legislation, reproved the commission for devoting itself "almost exclusively to the consideration of the broadcasting situation. He insisted that there were other uses for radio.

"Point to point communication," he said, "has been growing in importance and with it has come an increasing demand for wave lengths, and especially for the short waves for other than broadcasting uses."

Mr. White charged that the radio commission did not require applicants for licenses to broadcast to make an affirmative showing that the operation of their stations would serve the public interest, but it automatically issued licenses under the new law to all applying therefor.

Program Service on Light Wires Before Radio Commission.

Wired Radio, Inc., of 60 Broadway, New York City, has applied to the Federal Radio Commission for permission to rebroadcast programs over electric lighting systems.

The commission responded that the application cannot be granted prior to the short wave hearings scheduled for January 17, since use of short waves is involved in the application. The request was for permission to use three frequencies in the band commencing with 1,500 kilocycles. Programs would be picked up in New York and transmitted by wire to listeners.

The commission regards the application with much interest, since it may offer prospects for a new radio system. If electric lighting systems are used and the plan should become popular, it was declared, the way might be opened for charging users of programs to broadcast.

California Utilities Required to File Political Expenditures.

The California Railroad Commission has sent copies of a resolution to all public utility corporations and operators in California, which states that by order of the commission the utilities are required to supplement their 1927 annual reports with a statement showing the amount of money, if any, expended by them for political purposes, the accounts to which such expenditures were charged, and the purposes for which such expenditures were incurred or made.

By "expenditures for political purposes" is meant such expenditures, including allocations of compensation of executives, officers and employes for time devoted to political purposes, as are incurred or made to elect or defeat a candidate for public office, or to support or defeat any measure on the ballot, or to place any measure on the ballot, or to keep it from being placed on the ballot at any state, county, municipal or other election during the year.

The First Dividend Was 100%

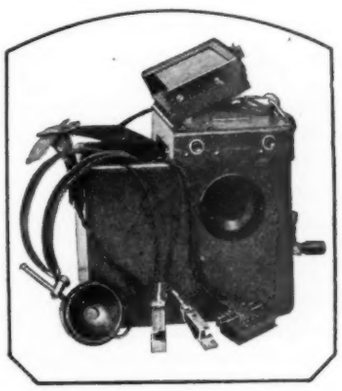
A user of the West Test Set writes:

"I was certainly surprised at the results obtained with my West Test Set. On the very first test, the saving in dollars and cents was more than I paid for the set."

This typical case shows how an investment in a West Test Set brings immediate returns.

The West Test Set is a combined portable telephone and test set. Using a finder coil directs the lineman to the source of trouble.

The saving in the troubleman's time and the saving in open circuit time combine to show a profit for companies using this modern high speed instrument. Order one today.



Send for Bulletin illustrating and describing every test that can be made with this efficient device.

American Electric Company, Inc.

State and 64th Streets
Chicago, U. S. A.

Licensee and Distributor of

The West Test Set

The statement shall be submitted by the president or general manager of the company under oath, and the oath shall show that he knows the facts contained in the statement to be true and correct on his own knowledge. The affidavit should also show that no expenses for political purposes have been incurred which are not included in the statement.

Increased Rates Effective January 1 at Sebring, Fla.

The Florida Railroad Commission, in an order issued last month, authorized the Inter-County Telephone & Telegraph Co. to revise and increase its rates for service at Sebring.

The following rates went in effect January 1:

Base rate area:	
Business, one party	$3.75
Business extension	1.00
Business joint user	1.00
Residence, one party	2.50
Residence, four party	2.00
Residence extension	1.00
Second rate area:	
Business, one party	6.00
Business, four party	5.00
Business extension	1.00
Business joint user	1.00
Residence, one party	4.00
Residence, four party	3.00
Residence extension	1.00
Rural: Eight party, beyond base rate area and within six miles of central office, including DeSoto City:	
Business	$4.00
Residence	3.00

The base rate area of Sebring consists of the city limits of the city as they existed on June 30, 1927, according to a blue print of the city limits attached to the petition and made a part of the order for the purpose of reference.

The commission also ordered that this cause remain open on the docket of the commission and jurisdiction be retained in the premises for the purpose of making charges, modifications or alterations in the order as the commission deemed proper after a further consideration of the facts relating to the telephone service at Sebring.

Stock Issue of Indiana Bell Approved by Commission.

The Indiana Public Service Commission has approved the issuance by the Indiana Bell Telephone Co. of $3,000,000 in common stock to sell at par to the American Telephone & Telegraph Co., of which the Bell is a subsidiary. The $3,000,000 issue which recently was authorized by the secretary of state is to be sold to the A. T. & T. Co. to cover betterments and extensions made to the Indiana Bell company's property between February 1, 1923, and September 30, 1927.

The cash realized from the sale of the stock will be used in making further betterments and extensions, it was said by Curtis H. Rottger, president of the Indiana concern. He said that the company's business was growing so rapidly that it probably would come before the commission again in two or three years and seek to issue additional stock in the same manner. The $3,000,000 common stock issue authorized by the secretary of state increased the Indiana Bell company's capital stock from $27,000,000 now outstanding, to $30,000,000.

The Index for Volume 93 of "Telephony."

The index for Vol. 93 of "Telephony," which was completed with the issue of December 31, 1927, is now ready for distribution among those who keep complete files.

In this index are listed all of the important articles which have appeared between July 1 and December 31. It will be supplied free of charge to those making application.

Hearing Before Kansas Commission on Osawatomie Toll Case.

Hearings were held January 4 and 5 in Topeka, Kans., on the application of the Farmers Mutual Telephone Co. of Osawatomie to compel the Southwestern Bell Telephone Co. to give it long distance toll connections.

Excepting for briefs, and very likely oral arguments by legal counsel before the Kansas Public Service Commission, the case now is in the hands of the commissioners. Taking of testimony was completed on the second day of the hearing.

The Osawatomie Telephone Co., of which T. L. Youmans is president, has a contract as toll agent for the Southwestern Bell Telephone Co. and is opposing the application.

W. W. Finney, of Emporia, Kans., manager of the Emporia Telephone Co., a Bell subsidiary, has a contract with the Farmers Mutual Telephone Co. that he will purchase it if the company can get the long distance connection. It is claimed that Mr. Finney is buying up a string of small companies on his own account, so he will have them when his present contract with the Bell company expires.

Better Service Necessary Before Increase Is Allowed.

Any increase in telephone rates for Lancaster, asked for by the Eastern Kansas Telephone Co., is denied in the order handed down recently by the Kansas Public Service Commission. Until the company improves its equipment and service to the point where it can be termed efficient, the commission said in its order, no application for increased rates can be considered.

In its finding the commission also pointed out that the company was asking for rates based on a reproductive value of its properties amounting to $29,421, while it had listed the same properties for taxation as worth only $9,813.

Three orders allowing increases in rates were issued at the same time the Lancaster increase was denied. At Ashland the individual business rate, magneto battery, was increased from $2.25 to $2.50 a month, common battery, from $2.75 to $3 a month, individual residence, magneto, from $1.25 to $1.50 a month, common battery from $1.50 to $1.75 a month. The individual business rate at Morland goes from $2 to $2.50; the residence rate, from $1.30 to $1.50.

At Englewood the business rate is increased from $2.25 to $2.50; the residence rate, from $1.25 to $1.50.

New Report Forms of Nebraska Railway Commission.

I. J. Devoe, in charge of the accounting department of the Nebraska State Railway Commission, has recast the form books used for Class C and D companies, and is sending out instructions and new report blanks for use in reporting the business for 1927. The Class A and B companies, the larger ones, use the Interstate Commerce Commission's forms. The class C and D companies are those having more than $5,000 and less than $50,000 yearly revenues, Class E are those having less than $5,000 yearly revenues, but are distinguished from Class F, which include those small companies having 125 stations or less.

Two new reports are being called for. One of these relates to accidents. The statistics are of no particular value to the commission, but some wise legislator deemed it necessary and had a law to that effect passed. Therefore, it is included in the annual report to comply with statutory requirement. The data asked for is not very voluminous.

Each company will hereafter be required to list its central offices and stations connected with each, so that the information will be readily available to the commission. A number of companies in these classes operate more than one exchange, and the absence of information as to the identity of these in the annual reports has resulted in inconvenience when it became necessary during the year to look up the territory each covers. The number of operators employed is also required to be listed.

Changes have also been made in the capital stock account. This schedule is intended to reflect the net preferred and net common stock outstanding at the close of the year. The instructions call for the listing of total balances in the accounts without deducting treasury stock; another calls for the amount of stock sold during the year; and others for other information that is necessary to make the totals balance, with instructions as to what is de-

sired to be shown. If stock has been sold during the year the details are to be entered on a blank enclosed for that purpose.

The comparative balance sheet calls for three columns instead of one, which eliminates the extra division calling for increase in fixed investment account and also give net figures against which may be checked the different divisions in the report in order to show the net financial transactions of the company during the year.

The first column calls for the balance at close of last year, the next one balance at close of this year, and the third the difference between them, a simplification that is easy to make. Following the liabilities side of the balance sheet are blank lines provided for giving the purposes for which the indebtedness shown in accounts payable and notes payable, have been incurred, which is a statutory requirement.

The surplus and profit and loss accounts form has also been changed. It will reflect identically the same information as called for in previous blanks. The division this year, however, is drawn up in such a way that it will require the profit and loss and surplus accounts to balance with the sum of balance sheet accounts. It is merely a summary of the combined ledger accounts. First is required the debit or credit balance at the beginning of the year, the next the debit and credit balances for income in total. Other debits and other credits are to be listed in detail.

Mr. Devoe says that the changes are made partly for the purpose of simplifying the entries and making the report easier to balance, and further to meet new statutory requirements. He has found managers and officers eager to cooperate as the benefits to the companies in properly-kept books and properly-made reports have been made clear in the rate hearing and in discussion of other problems.

Tri-State Acquires Property at Northfield, Minn.

The Minnesota Railroad & Warehouse Commission recently authorized the application of the Tri-State Telephone & Telegraph Co. for the approval of the purchase of all of the physical property of the Northfield Telephone Co., and ordered the rate schedules of the Northfield company to be cancelled and the rates of the Tri-State company to be placed in effect upon the completion of the interconnection of service between the systems.

The Tri-State Telephone & Telegraph Co. operates a local telephone exchange at Northfield, serving approximately 1,360 telephones. The Northfield Telephone Co. is a corporation operating a local telephone exchange in the same city and rural lines in the vicinity, serving a total of approximately 430 telephones.

The systems have been operating on a competitive basis, there being now approximately 110 duplicated stations, 97 of which

When you have seen it, you'll want a Ta-Bed in your home too.

The Ta-Bed

By day the Ta-Bed is a beautiful table; by night, or, upon a moment's notice it is converted into a comfortable bed.

FOR your night operator—for sickness, accident or any emergency—a bed in your operators' restroom is essential. At the same time, it is important that surroundings be attractive.

To fulfill this double purpose and naturally, from a standpoint of economy—you'll find a Ta-Bed highly practical. In single or double size.

Ta-Bed Corporation 666 Lake Shore Drive CHICAGO

IF

you will just consider the vast experience our more than ***twenty-five years*** of specializing upon serving the printing needs of telephone companies has given us, you will readily realize that we are in a position to ***serve you to advantage.***

As evidence of the satisfaction of our service we submit the fact that we have served the same companies continuously for that entire time—an enviable record.

Send us samples or sketches of your forms, mentioning your requirements, and we will gladly quote prices.

Glennon & Kern
626-636 South Clark Street
Chicago, Illinois

The
Handyman
POLE PULLER

A ONE-MAN tool, light, easy to handle. Pulls a pole out of the ground three feet without taking extra hitch. Lifts on down stroke of the handle. Clamp prevents jack rubbing against pole, giving most direct possible pull. A most useful addition to plant equipment. Used on every job where heavy lifting is required.

Write for descriptive folder and prices.

HARRAH MFG. CO.

Bloomfield, Ind.

Be a supporter—mention TELEPHONY.

are in town, 13 being in the rural districts. The purpose of the transfer of the property is to consolidate the service and eliminate duplication. The sale of the property was ratified by a majority of the stockholders of the Northfield Telephone Co. at a meeting held November 23, 1927.

The subscribers of the Northfield company are fully informed as to the difference in the rate schedules and offered no objection whatever to paying rates of the Tri-State company when a consolidation of the properties is consummated. Interconnection between the two systems were made by January 1, 1928, and a complete consolidation of the service will be made as soon as possible thereafter.

Upon consolidation of the properties and the elimination of the duplicate stations, there will be added to the Tri-State system at Northfield approximately 310 stations. The commission has given no consideration to the price which is being paid for the property purchased.

Central New York Company Reduces Business Rates.

The Glen Telephone Co. has put into effect, according to a schedule filed with the New York Public Service Commission, new rates for individual line business service in Broadalbin, Canajoharie, Fort Plain and Northville, making a reduction of 25 cents a month in the four places.

The Broadalbin rate is reduced from $3.75 a month to $3.50; the Canajoharie rate from $4.50 to $4.25; the Fort Plain rate from $4.50 to $4.25; and the Northville rate from $3.75 to $3.50.

Telechronometer Implied As Dismissal Cause of Engineer.

Wellington Rupp, who has been dismissed as chief engineer of the Washington Department of Public Works, recently issued a formal statement in which he implied his refusal to recommend a statewide investigation of the telechronometer system of telephone measurement led to Director John C. Denney's request for his resignation.

Mr. Rupp was employed by the Washington Department of Public Works as an engineer in 1921 and Director Denney named him chief engineer September 15, 1925. He is a graduate of the University of Washington and was in the army air service during the World War.

Hearing for Telechronometer Service to Be Set Soon.

No hearing has yet been set on the petitions of the 13 cities of Washington to the state department of public works asking that telephone service be put on a measured service basis by installation of telechronometers. It is said to be the hope of board members and petitioners to hold a consolidated hearing. In that event, any order issued by the board would be practically of state-wide effect.

The state department first gave the Home Telephone Co., serving Spokane, and the Pacific Telephone & Telegraph Co., serving the other 12 cities, ten days in which to make an appearance in an answer to the petitions. The companies asked for 60 days, and the department responded with an allowance of 30 days. The attitude of the companies will be defined early this month, after which the time for hearing will be fixed.

In answer to the petitions for telechronometer service, the Pacific Telephone & Telegraph Co. points out that the only place in the world where the device has been installed and operated is in the city of Everett. The telephone system there, it is said, is owned by the Puget Sound Telephone Co., which owns 1,000 shares in the company controlling the telechronometer. The company operates and maintains exchanges throughout Snohomish, Skagit and Island counties, but has not seen fit to install the device outside the city of Everett, it is declared.

There does not exist a demand on the part of the telephone company's patrons for the installation and use of the device, the company says in its answer, adding that those who have requested it have a financial interest in the device.

It is pointed out that the telechronometers cannot be purchased, but must be leased.

It is declared that in addition to the cost of adapting the Tacoma plant for the use of telechronometers and the annual rental in excess of $63,000, other expenses will have to be incurred in reading the telechronometers; additional accounting will be necessary by reason of its use; additional expense incurred in the investigation and adjustment of complaints arising out of claims of overcharge by reason of errors in reading and defective devices; payment by subscribers for calls in securing long distance connections; reporting telephone instruments out of order; obtaining information and other calls of like nature.

Judged by all indications, the telephone patrons of Everett, according to press reports, have settled down to the measured service and become reconciled to the telechronometer, which was the object of vigorous protest when first installed in 1922. After long controversy, many public hearings, tests and investigations and considerable litigation, measured service was definitely resumed in Everett January 1, 1927, by order of the state department of public works.

It is a matter of public record that in the first month of measured service, 1,200 new subscribers were added to the Everett exchange, and during the remainder of the year new telephones were installed at an average of about 30 a month. It is also reported, both from Everett and Olympia, that not one complaint against the telechronometer has been made during the year either to the telephone company or the state board.

The state department's engineers and rate experts have maintained supervision over the measured service; and the members of the board have declared themselves well satisfied with the demonstration.

The latest reports of the department show that 70 per cent of the Everett telephone patrons have been paying less for the service they receive with the telechronometer than they would have paid on a flat rate scale, while 30 per cent, identified as the natural heavy users, are paying more.

These reports have convinced the department heads that the "useless" use of the telephone and practice of listening-in on party lines have been very much discouraged in Everett.

Rates Increased but Not Amount the Company Asked.

Based upon a book value of $14,576.60, the Wisconsin Railroad Commission has authorized an increased schedule of rates for the Cascade Telephone Co. An allowance of $1,900 per annum was made for depreciation and return, which indicated a need for increased revenues of about $1,500 annually.

The rates proposed by the company would yield more than this amount, so the commission specified other figures in its order. The old and new net monthly rates follow:

	Old	New
Local Service:		
Business, one-party	$1.50	$2.50
Business, two-party	....	2.00
Residence, one-party	1.50	2.00
Residence, four-party	....	1.50
Rural Service:		
Business	1.25	2.00
Residence	1.25	1.75
Miscellaneous Equipment:		
Extension, business	....	1.00
Extension, residence	....	.75
Residence desk sets, additional	....	.15
Rural desk sets, additional	....	.25
Extension bells within same building	....	.25

Consolidated Company of Wisconsin Obtains Increases.

The Wisconsin Railroad Commission has issued an order authorizing the Consolidated Telephone Co. of Wisconsin to establish new rate schedules for service on its Mishicot, Colby and Abbotsford exchanges. The new rules and rates are the same as proposed in the company's application with a few exceptions.

The old and new net monthly rates for the Mishicot exchange are:

	Old	New
One-party business	$2.00	$4.00
Two-party business	1.75	3.50
Business extensions		.75